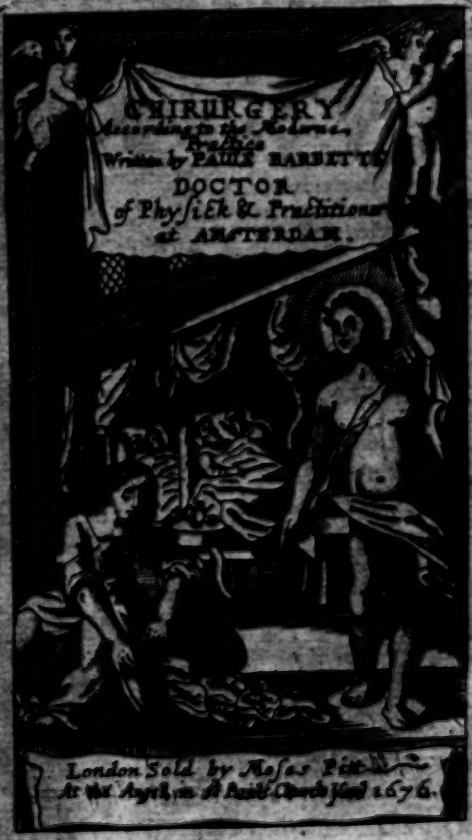
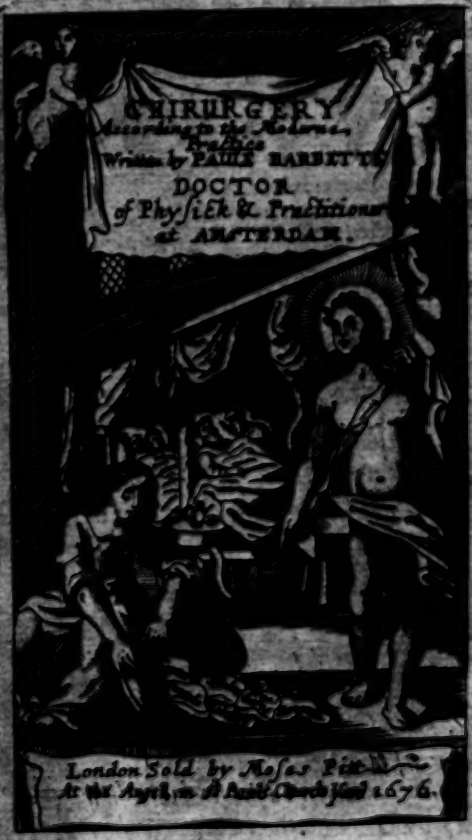

CHIRURGERY
According to the Modernes Practice
Written by PAULE BARBETTE
DOCTOR
of Physick & Practitioner
at AMSTERDAM.
London Sold by Moses Pitt
At the Angel in S. Pauls Church-yard 1676.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THESAURUS CHIRURGIÆ:

THE

CHIRURGICAL & ANATOMICAL

WORKS

OF

PAUL BARBETTE, M.D.
Practitioner at *Amsterdam*.

Composed according to the Doctrine of the Circulation of the Blood, and other new Inventions of the Moderns.

Together with a Treatise of the PLAGUE, *Illustrated with Observations.*

Translated out of Low-Dutch *into* English.

THE THIRD EDITION.

To which is added the *Surgeon's* Chest, Furnished both with *Instruments* and *Medicines*, all useful: Illustrated with several *Copper-Plates*: And to make it more compleat, is adjoyned a Treatise of Diseases that for the most part attend *Camps* and *Fleets*.

Written in High-Dutch *by* Raymundus Minderer us.

LONDON, Printed, and are to be sold by *Moses Pitt* at the *Angel* in S. *Paul's* Church-Yard, 1676.

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THE AUTHORS PREFACE TO THE JUDICIOUS READER.

WHat ſhould be the ſcope of putting forth this my not ſufficiently Poliſhed Treatiſe, after ſo many Excellent and Learned Writings of *Phyſicians*, the Title before will declare unto thee, *viz.* That my Deſign was both out of the Ancient and Modern, to extract the very Marrow, and plainly to ſhew the beſt way of Curing Diſeaſes belonging to Chirurgery: Therefore I have purpoſed not to obtrude upon thee this or that Mans

Fancy or Conceit, for Modern Practice: For who ever was so mad as to embrace the Opinion of any one Region, City or Man? Who ever, though most ingenious and judicious, equally excelled in all the Parts of his Profession? seeing it hath not pleased the Giver of all Arts to grant this perfectness to men; But I resolve to set down that Practice which Reason and Experience, after a diligent reading of the best Authors, and an exact observation of several Operations, have taught me to be the safest, convenientest and easiest, for prolixity I have purposely avoided, and used not more words than only to express the thing it self. Nevertheless I have studied to comprehend the Foundation of the Art in few Chapters. Read over all diligently, and let not what I purposely omitted,

omitted, trouble thee: Great Volumns easily affright the Reader, as those that are too little betrays him: I have carefully endeavoured, what is hardly found, a mean; and therefore I have rather in few words inserted my Observations in the very descriptions of the Diseases, then to waste thy time with a prolix discourse: To this end, that I might not repeat in particular Diseases, what I had once set down in generals.

Tumors, *Wounds*, and *Ulcers*, which neither in Cause nor Cure differ, I have reduced under one Head, contrary to what most Writers use to do, who only from the difference of the Part and Member affected, difference the Diseases, which afterwards giving them new names, they without any benefit multiply, and so

they render that Art which is difficult enough of it self, much more difficult. The most diligent of Students can scarce distinguish them; who unprofitably spend much labour, and time in the Controversies of the Ancients concerning the name, whose Opinions they suppose they ought to follow to a tittle, if they will arrive at the degree of Doctor. We are the Ministers of Nature, not the slaves of those Men that describe it: We account neither them Prophets, nor their Writings sacred, neither unlawful to add, or diminish to them without the name *Heretick*.

I have set down both few, and many Medicaments; for those that I have produced, although few in number, yet of great vertue, which by vast pains, and no less charges I have found out, and which daily

Practice

Practice hath confirmed to me, as the safest of all. Other Medicines seek for amongst others.

Farewell kind Reader, and whilst I am imployed about other, and better (if I can possible) writings, receive these with a grateful mind; and as I study to be profitable to thee, so also do thou endeavour always by these to help others.

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BARBETTYS CHIRURGERY.

The First Part.

CHAP. I.

Of Manuall Operations in general.

ALthough the word *Chirurgery* signifies all *Manual Operations* in general; yet, by reason of its preeminence above all the rest, it is now only given to that *Art*, which endeavours to remove the Diseases of the Body, by the assistance of the *Hands*.

'Tis true, that External Accidents require not only the help of the *Hands*, but also *Internal* Means; therefore it is no wonder for a Part of Physick to require the whole: *Chirurgery* being a Part, which depends upon the Body of *Physick*: But these internal Medicines we impart to you, not as *Chirurgeons*, but as *Physicians*.

The General Operations of this Art, to which all the particular ones may be reduced, are of four sorts:

1. *Synthesis*, which teacheth how to unite parts disjoyned.

2. *Diæresis*, To separate parts unnaturally joyned.

3. *Exæresis*, To remove what is superfluous.

4. *Anaplerosis*, To supply those that are wanting.

CHAP. II.

Of Synthesis or Unition.

UNition is of two sorts; one regards the *Hard* and *Bonie*; the other the *Soft* and *Fleshy* parts of the Body.

The *Unition* of *Bones* is again twofold; the one, setting *Bones broken*; the other, reducing *Bones wrenched* or *disjointed*. We will begin with *Fractures*.

CHAP. III.

Of the Nature, Difference, Signs, Prognosticks and Cure of Fractures in general.

A *Fracture is a Solution of continuity in the hard parts of the Body, caused by an hard Instrument externally forced upon the part.*

The *Differences* are taken, 1. From the *Manner*, there being some transverse, which are properly called *Fractures*: others that are made according to the length of the Bone, called *Fissures*, and others are *Comminutions*, when the Bone is broken

broken into many small parts. 2. From the *Part*, it being sometimes in the Head, sometimes in the Shoulders, Ribs, Arms, Legs, *&c.* 3. From the *Accidents*; there being sometimes a Wound accompanying it, at other times, a Dislocation, Inflammation, Gangrene, *&c.*

Cause] is, Whatever is able to break, bruise, or cut: Sometimes also a Bone corrupted by the Pox, Gout, or otherwise, hath been broken without any external force.

Signs.] A Bone being transversly or obliquely broke, by handling it, you perceive an inequality; the Patient is scarce able to move the Part affected, and sometimes that Part is shorter than the other; the Thigh, Leg or Foot being broken, the Patient cannot stand at all; but he may somewhat, though with pain, in a Dislocation: And this is the surest difference between a Fracture and a Dislocation. A *Fissure* is discerned by the thickness, pain and unevenness of the Part, and requireth the judgment of a skilful Chirurgeon. A *Comminution* is easie to be perceived, the Bone being very unequal, and here and there yielding to the fingers.

Prognostick] A *Transverse* Fracture is more easie to cure than an *Oblique*, or when accompanied with apparent inequalities, *that*, where but one Bone is broken, than where two are, or where the bones are much shattered; *that*, which is made in the midst of the Bone, than what happens to be near the Head; and a single one, than a compound, If the Patient remain undressed beyond the seventh day, the Member is in danger of mortifying, especially if that the Part be too hard bound.

The Cure] A broken Bone requireth these four

Operations, *Extension*, *Conjoyning*, *Ligature*, *Well-placing*, and withal, the application of outward and inward remedies.

Extension can hardly be performed without pain, which yet will be much less, if the Member be so extended, that the Muscles do not labour; that is to say, The Part must be so laid, that when *in health*, they could hold out longest without tiring. Sometimes the extention must be greater, sometimes lesser, which will be performed aright, if regard be had to the time of the Fracture, to the age of the Patient, and to the greatness of the Bone. A recent Fracture, a tender Patient, a small Bone, require a gentler extention: on the contrary, an old Fracture, a strong Patient, and a big Bone, a greater. The manner of extending I describe not, because it is better learnt by the frequent view of Practice, than by Reading.

After *Extension*, you are to joyn the Bones together, in the doing of which, the Muscles must not be wrested, but retain their natural position and figure.

Then the Part must be bound with a double Rowler, the *first* is to be rowled thrice about the Fracture, and then upwards. The *second* (which must be twice as long) is to be once wound about the Fracture, proceeding downwards, and then upwards again, a little higher than the first Rowler, to which you will give more firmness, if you bind some convenient Splints (of Wood, or rather of Pasboard) round about the Member.

The Ligature ought not to be too strait, lest it cause pain, and rob the Part of its nourishment; nor too loose, lest the Bones slip out of their

place.

place. And unless great pain, or other symptomes require, it must not be opened before the *third* day; and at the *second* dressing, it must be bound somewhat closer, and afterwards changed but once every four, five or six dayes.

Lastly, The Part ought to be *well placed*, that is, softly, evenly, and a little raised. If you lay it too low, the Bone will bend outwards, if too high, it will bend inwards: Wherefore you must observe a mean.

Now, whether these four Operations have been duly performed, may be known by the ensuing Signs.

The *Extention* is well done, if the part be straight, and as long as its fellow, if it appear to outward view every where even, and a little hollow about the Fracture.

The *joyning together* is duly made, if the Bone be any thing firm, and all about the Fracture be found equal.

The *Ligature* is as it ought to be, if the Patient, as soon as he is dressed, find the pain abated, if the pain do somewhat encrease the first and second night, and there be perceived the third day, without the place of binding, a little swelling, yielding to your hands.

The Bone is *well placed*, if in the second dressing you find all even.

Before you rowl the Ligature about the Member, bathe the part with Spirit of Wine or Red Wine, or, with Oyl, Wine and Vinegar mix'd together; Or, take the White of an Egg, with some Bolus, Frankincense, Dragons Blood, &c. Or annoint it with Oyl of Roses, Mirtles, Violets,

Operations; *Extention*, *Conjoyning*, *Ligature*, *Well-placing*, and withal, the application of outward and inward remedies.

Extention can hardly be performed without pain; which yet will be much less, if the Member be so extended, that the Muscles do not labour; that is to say, The Part must be so laid, that when *in health*, they could hold out longest without tiring. Sometimes the extention must be greater, sometimes lesser, which will be performed aright, if regard be had to the time of the Fracture, to the age of the Patient, and to the greatness of the Bone. A recent Fracture, a tender Patient, a small Bone, require a gentler extention: on the contrary, an old Fracture, a strong Patient, and a big Bone, a greater. The manner of extending I describe not, because it is better learnt by the frequent view of Practice, than by Reading.

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place.

place. And unleſs great pain, or other ſymptomes require, it muſt not be opened before the *third* day; and at the *ſecond* dreſſing, it muſt be bound ſomewhat cloſer, and afterwards changed but once every four, five or ſix dayes.

Laſtly, The Part ought to be *well placed*, that is, ſoftly, evenly, and a little raiſed. If you lay it too low, the Bone will bend outwards; if too high, it will bend inwards: Wherefore you muſt obſerve a mean.

Now, whether theſe four Operations have been duly performed, may be known by the enſuing Signs.

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The *joyning together* is duly made, if the Bone be any thing firm, and all about the Fracture be ſound equal.

The *Ligature* is as it ought to be, if the Patient, as ſoon as he is dreſſed, find the pain abated; if the pain do ſomewhat encreaſe the firſt and ſecond night, and there be perceived the third day, without the place of binding, a little ſwelling, yielding to your hands.

The Bone is *well placed*, if in the ſecond dreſſing you find all even.

Before you rowl the Ligature about the Member, bathe the part with Spirit of Wine or Red Wine; or, with Oyl, Wine and Vinegar mix'd together; Or, take the White of an Egg, with ſome Bolus, Frankincenſe, Dragons Blood, *&c.* Or annoint it with Oyl of Roſes, Mirtles, Violets,

lets, &c. or lay Plaisters on it. In Winter, the *Oxycroceum* will do well: At all times that which follows;

Take Mastick, Frankincense, of each two drams, Aloes, Gum Tragacanth, Dragons Blood, Bole-Armonick, of each one dram; *Lapis Hæmatitis*, Burnt Talk, of each one dram; Whites of Eggs, and Oyl of Roses, as much as is sufficient. Make it into a Plaister.

If a *Wound* accompany the Fracture, then ought you to extend the Part first (yet somewhat gentler than in a simple Fracture) then you are to joyn the Bones together; next, to observe the Wound, to bring the Lips thereof together with Plaisters, rather than with a Needle, and to guard it with a Defensive: And lastly, Roul the Part, and lay it conveniently.

If there be a *Comminution* or great shattering of the Bones joyned with the Wound, then endeavour with Forceps to remove the small loose Bones, leaving those to Nature that are yet any way fixed; for she will, though somewhat later, of her self throw them out; and sometimes she will unite them again to the whole. Yet, to forward her, you may assist Nature with the following Medicaments.

Take Ashes of Earth-worms, three drams; Virgins-Honey, an ounce and half; mix them, and make an Oyntment.

Or,

Take Aloes, Myrrhe, of each half a dram; Roots of Comfrey the great, Round Birthwort, of each three drams; *Euphorbium*, two drams; Turpentine and Wax, as much as is sufficient, with a little Oyl of Lillies, to make it into an Oyntment.

If

If the Bone be *bare*, cover it with its own skin and Muscles, and defend it from the Air as much as is possible.

If it be *bare* and also *started out*, endeavour to reduce it again into its place; but if it be got out too far, take away the pieces thus started out, with a Saw or Nippers.

Now these Manual Operations being well performed, the Patient must observe a good Diet; open a Vein upon occasion, and afterwards purge the Blood. In the Fractures of the lower parts, purging is not convenient; but if the Patients Belly be bound, he must take a Suppository.

In the Fractures of the upper parts, purging or administring Clysters, is oftner necessary, and may be done by the ensuing compounded or simple Medicines, which may also serve you in all other Accidents that we may describe in this whole Treatise.

Medicines purging Choler.

Rhubarb, *Cassia fistula*, yellow Myrobalans, Tamarinds, Manna, Scammony, Syrup of Sichory, with Rhubarb, *Elect. Catholicum, Hiera picra, Lenitivum, Diaprunum solutivum, & Succo Rosarum, Pil. de Aloe Rosata, Aurea, Aloephangina, Ruffi.*

Take Electuary Lenitive, two drams; *Elect.* of the Juyce of Roses, one dram, *Cassia* fresh extracted, two drams; Cream of Tartar, two scruples; Succory-water, as much as is sufficient; Spirit of Vitriol, a little. Make it into a Potion.

Or,

Take Rhubarb, Senna, of each, two drams; Cream of Tartar, one dram; Aniseeds, half a dram: Infuse them two hours in a sufficient quantity of Sorrel-water, let it boil a little, and to three ounces of the strained Liquor,

Add of the

Elect. of *Diaprun. Sol.* one dram, or a dram and half, and drink it.

Or,

Take of *Pilula Aurea*, *Extract. Catholicum*, Rhubarb, of each half a scruple. Make them into seven Pills.

Or,

Take Cream of Tartar, *Sal Prunella*, of each xij grains; Vitriolated Tartar, *Diagredium*, of each vj grains. Make it into a Powder.

Medicines that purge Phlegm.

The Roots of *Asarum*, Mechoacan white and black, Hellebore, Colocinth, Myrabolani, Bellirie, Emblici, Chebuli, Agarick, Turbith, Syrup of *Diacarthamum*, Electuaries of *Hiera* with Agarick, *Diaphanicon*, *Diacarthamum*, Confection of Hamech, Powder of Diaturbith, Pills of *Cochia*, *Fætida* the greater, *Aggregativa*, *Lucis* the greater, *Assajeret* of *Avicen*, Troches of Agaric, Alhandal.

Take Roots of Grals, two drams, Flower de luce, Trochiscatum Agarick, Turbith, of each one dram; Aniseeds, Fenel-seeds, of each one scruple; Let them infuse for three hours in a sufficient quantity of Parsley-water, boil it, and strain it; and to three ounces of it,

Add

Add of

Electuary of Diaphenicon, one dram and half. Make it into a Potion.

Or,

Take Electuary of *Diacarthamum*, Confection of Hamech, of each two drams; powder of Jalop, eight grains; Cream of Tartar, two scruples, Fennel-water, as much as sufficeth. Make a Potion.

Or,

Take of Pill *Aurea*, six grains; of Pill *Cochie*, Pill *Fatide* the greater, of each twenty grains. Make them into seven Pills, and gild them.

Or,

Take Extract of *Catholicum*, xiij grains; of the Troches of Alhandal, one grain. Make three Pills, and gild them.

Medicines purging Melancholy.

Roots of black Helebore, Polipody, *Senna*, *Lapis Lazuli*, Syrup of Roses solutive with *Senna*, Electuaries of *Diacatholicon* lenitive. Confection of Hamech. The Powder of *Dia Senna*, Pills of *Lucis minoris*, Troches of Alhandal, Myrobalans of *India*.

Take Bark of Tamarisk, three drams; Roots of Polypody, two drams; Szechas flowers, half a pugil; *Senna*, one dram and half; Aniseeds, half a dram; Mirobolans of *India*, one dram: Infuse them two hours in a sufficient quantity of Borage-water, boyl it, and strain it; and to four ounces of the strained Liquor,

Add

Add,

An ounce of Syrup of Roses with Senna, Spirit of Salt, as much as will give it a little acidity; and make it into a Potion.

Or,

Take Electuary of *Diacatholicon*, one dram; the Electuary of *Diaphœnicon*, Confection of Hamech, of each a dram and half; Cream of Tartan, two scruples; Powder of Jalop, six grains; Whey, a sufficient quantity. Make a Potion.

Or,

Take of Pill *Indiæ*, of Aggregativæ the greater, of each fifteen grains: *Diagridium*, three grains; Troches of Alhandal, one grain. Make seven Pills, and gild them.

Note, All these *Receipts* are set down for full-grown Bodies, their quantities being to be lessen'd according to the younger age and strength of the Patient.

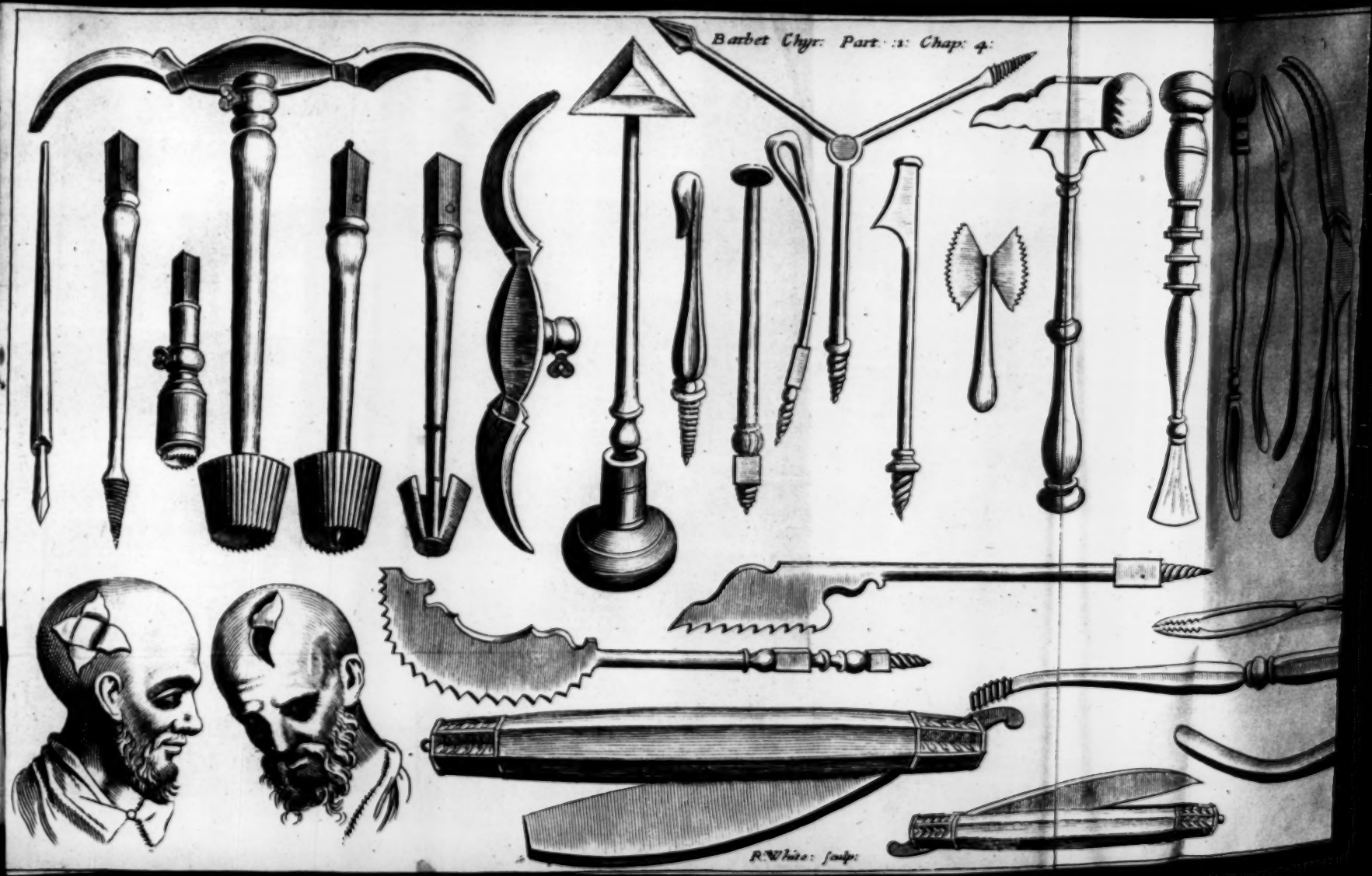
CHAP. IV.

Of particular Fractures of Bones.

THe Fractures of the *Skull* are divided into six several kinds; A *Fissure*, *Contusion*, *Fracture*, *Incision*, *Puncture* and *Contra fissure*.

A *Fissure* is made by a hard and blunt Instrument, and passeth sometimes through both Tables, sometimes through one only.

A *Contusion* is made, when by a hard and blunt Instrument the Skull is so hurt, that it appears whole from without, but yet is sever'd from the whole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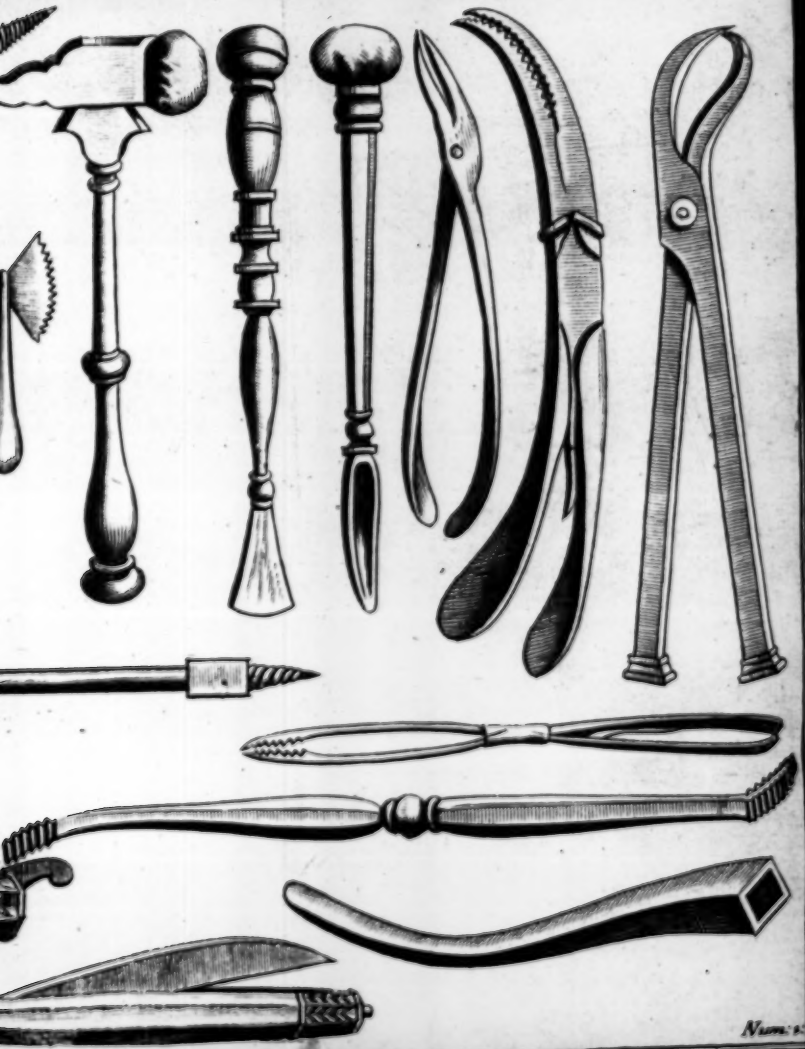


whole within: Which yet in little Children may be done without a Fracture.

A *Fracture* is made, when a part of the Skull is separated from the whole.

An *Incision* is made by a cutting Instrument; where sometimes one part of the Bone is raised up and separated, as it were, but is yet fast to the rest of the Bone; sometimes a part is quite taken away; sometimes there remains a mark in the Bone according to the figure of the Instrument.

A *Puncture* is made by a pungent or thrusting Instrument, and seldom passeth through both Tables.

A *Contra-fissure* is made, when the part struck remaining whole, the opposite part is cleft.

The *Signs* are, Swimming of the Head, dimness of the Eyes, Vomiting, Bleeding at the Mouth, Nose and Ears. The Patient grows dumb, and suddenly falls to the ground: whereupon follows Raving, a Feaver, Convulsions, Palsie. Any hard thing, as a piece of Wood, a Spoon, *&c.* being put into his Mouth, he is not at all, or hardly able to bite upon it. Here it must also be carefully enquired, in what manner, and with what Instrument he hath been hurt? Whether he be young or old, tender or strong, healthy or unhealthy? Presently after the Fall or Stroke, before the Part swells, you may sometimes feel the hurt with your fingers; and if there be a Wound with it, you may either see it, or find it out with a *Probe*.

Prognosticks.] The Fractures of the Skull, how fair soever they may look, is never without danger, but more dangerous, when both the Tables are hurt or broken; and more dangerous yet, if the

Dura

Dura Mater, and most dangerous; if the *Pia Mater* be also hurt. The more Symptoms there are, the less hope of a good event. If the Bone grow black in the beginning, that is a mortal Sign.

Cure.] If the Skin be yet whole, or the wound not large enough, make a cross incision, and divide the *Periostheum*. If under it you find a fissure, put some Ink into it, and bind up the wound. The second day, or as soon as the bleeding is ceased, scrape the Skull at once, or at several times, until the Ink, with the Fissure is altogether gone, and the Bone grow somewhat bloody, then throw the ensuing Powder upon it.

Take Dragons Blood, burnt Harts-horn, of each one dram and half, Myrrhe half a dram, Frankincense, and Orrise roots, of each a dram, Make it into a very fine Powder.

If the *Fissure* pass through both Tables, then are you to make use of Trepanning, as likewise in the *Contra-fissure*, *Fracture* and *Contusion* of the Skull, or else you will quickly lose your Patient.

The *Incision* is healed like the *Fissure*.

In the *Puncture* you must put the Trepan just in the middle, and not on the sides of the place hurt.

If you find a Fracture with a Comminution, then take out all the small loose Bones, committing to Nature those that are yet fast to the *Pericranium*, or cannot be taken away without force. And then if the Fracture be so large, that you can free the Brains from the coagulated or corrupted Blood, or from the pricking Bones, Trepanning will be needless, but if it should happen otherwise,

wise, you must, with great care, apply the Trepan, unless the Patient be strong, and the matter very little. The manner of Trepanning will be taught in another place.

2. In a Fracture of the Nose, what is raised is to be pressed down, and what is pressed inward to be raised with a *Spatula*, or other Instrument; afterwards a Pipe or Quill is to be put up, and continually kept there, till the Cure be done, and a Fracture-Plaister is to be laid on without. If the Bone be not corrupted, it will be healed in ten or twelve days.

3. A broken *Jaw-bone* is restored by one's fingers used both within and without the Mouth; and if those be too weak, then one is to draw the Head backward, and the Chirurgeon forward, and so to put it in: It is cured in twenty days.

4. The *Clavicle* being broken, there must be one to draw the Arm backward, and another to draw the Neck or Shoulder forward; the Chirurgeon himself, in the mean time, drawing upwards what was fallen down, and downwards what was raised too high. If a Ball be put into the Arm-pit, and the Elbow be pressed against the Ribs, the Operation will prove more easie. It is cured in twenty four days.

5. If the *Shoulder-Blade* be broken about the place where it is united to the *Arm*, then is the hurt for the most part incurable. If it break in the *Acromion* (which may be easily felt) then let the Arm or Shoulder be pull'd down, either with Hands or Ligatures, and in the mean time set in. If it be broken into several pieces, make an Incision, and take them out, unless they be yet fast to the *Periosteum*, in which case, you must leave

Nature

Nature to her self, which will either make them unite again, or throw them out. It is healed in forty dayes.

6. The *Sternum*, or Breast-bone happens either to be *broken*, and then you'l find an unevenness, which being touch't, will yield to the fingers, and cause some cracking; or to be prest in, and then you'l feel a bending inwards, which will cause pain, a short breath, coughing and spitting blood. To restore the same, lay the Patient on his back upon a great stone, prelling both his Shoulders downwards, then prels the Ribs backward and forward, until the Bone be reduced again in its right place. This is cured in twenty days.

7. A simple Fracture of the *Ribs*, which is without any great Contusion or Inflammation of the neighbouring parts, may be healed in twenty dayes, applying the Fracture-Plaister. If the Ribs stand out, they must with ones hand be prest in. If they bend inward, let the Patient keep in his breath, and so prels the Rib outward, in the mean time, assisting him with your hand. If that succeed not, then lay a sticking Plaister upon it, and pull the same off so often, until the Rib return into its place. Cupping-glasses here are of no use.

8. A simple Fracture of the Joynts of the *Back-bone* is easily set again with ones finger, and is made whole in twenty days. But if the Marrow of the Back-bone be so hurt or prelled in, that the Arms or Legs of the Patient become lame or senseless, that he cannot retain his Urine, or his Excrements, then he seldom escapeth death. Yet you are to do your utmost, and if one or more

small

small Bones be altogether loose from the *Periostium*, then make incision, and take them out.

9. The same is to be understood of the fracture of the *Os sacrum*, which alone hath this peculiar, that you may put your fingers into the *Anus*, and restore it to its right place.

10. The *Hip-bone* being broken, is to be set as soon as possible may be, and then it will heal in twenty four days, otherwise you may expect various accidents. But if it be fractured into many pieces, then you are forthwith, in the first dressing, to make an Incision, take out the small Splinters, and re-place those that have yet any hold-fast. Yet, by reason of the multitude of the Tendons, Muscles, Veins, Arteries and Nerves, that are spread over the whole part, such an Incision cannot be made without great danger.

11. If the *upper Bone* of the *Arm* be broken, first bend the Elbow toward the Breast, then take the lower part of that Bone close to the Elbow, pulling it straight down towards the ground, and so restore it, well observing here, that the Arm, during the whole time of Cure, must remain in that posture in which it was extended, otherwise the Fracture will, upon the least change of its posture, slip out again. Where yet 'tis to be understood, that the Chirurgeon, after the second or third dressing, as often as after that he dresseth the Patient, must stretch out his Arm strait, to the end that the Tendons which run from the Arm, and are inserted below the Elbow, shrinking by the long lying still, may not cause a troublesome stiffness. However, this shrinking of *Tendons*, which are by pretenders to Chirurgery,

gery, ridiculously call'd *Nervous*) may yet conveniently be cured in two or three months, if you make the Patient to carry every day some weight, and endeavour to relax and mollifie the Tendons with Fomentations and Embrocations, abstaining from the use of any Brandy, or any other corroborating and astringent Medicines. I have always found successful the following Unguent.

Take Marsh and Duck's Grease, of each one ounce; Ointment of Marsh-mallows, half an ounce; Oil of Earth-worms, white Lily, and Camomile, of each two drams. Make an Ointment.

This *Broken Bone* is cured in forty days. The restoring of the broken Thigh-bone, hath nothing different from this.

12. The *Elbow* hath two Bones, of which, the greater is called *Radius*, the lesser *Ulna*, both *Fusiles*: The small *Fusile* being broken, 'tis easie to restore it. The Cure is harder, when the great one is broken; and yet harder, when both are broken: In which case, the extention is to be made the stronger. When they be well set, and bound up, then must the hand be placed a little higher upon the Chest than the Elbow; and afterwards, every second or third day (without pain or violence) the Arm is gently to be stretched out, to the end that the humors flowing thither, and there staying too long, may not cause a concretion in the Bones, and a stiffness in the Arm, as not extensible any more. It is cured in thirty days.

13. The *Leg* hath also two Bones, the greater called *Tibia*, and the lesser *Fibula*. Their Cure hath nothing different from the next foregoing.

14. If the *Patella*, or Knee-pan break cross-

wayes,

ways, the Patient commonly remains lame. If it break long-ways, then by the Muscles that draw upwards, without any great help of the hands, it is almost of it self restored, and cured in twenty days.

CHAP V.

Of the Nature, Difference, Signs, Causes, Prognostick, and Cure of Dislocations *in general.*

A Dislocation is a forcing of the Bone out of its cavity and natural place into another, hindering voluntary motion.

The *Differences* are taken, 1. From the *manner*; for sometimes the Bone is altogether forced out of its place, and that is properly called *Luxation* or *Dislocation*: Sometimes it is got out but a little or half, which is called Sub-luxation, or *Elongation*. 2. From the *Cause*, for sometimes it is from an external accident, as by Wrestlings, Falls, or Blows, &c. Sometimes from internal Causes, by the afflux of Humors.

The *Causes* are of two sorts; 1. *External*, Such as are Falling, Beating, Running, Wrestling, and vehement extention, as it often happens to women in Labour, through the unskilfulness of Midwives; yea, by a violent stroke or fall, even the Bones of the Infant in the Womb may be dislocated. 2. *Internal*, By the afflux of Humors, which falling into the Joints, relax and resolve the Ligaments, and so causeth the Bones to slip out of their places.

The *Signs*, especially in a lean Body, are manifest enough. The Bone causeth in the place to *which* it is forced, a tumor or rising; and in that *whence* it is forced, a cavity. If there be a perfect Dislocation, the Member will be drawn up, and shorter (unless the luxation happen by the laxity of the Ligaments, then it becomes longer) the part is painful, chiefly upon motion. In a subluxation, these Accidents are lesser, and seldom all together.

Prognosticks.] In Children and other tender Bodies, the Bones may be reduced more easily, but are kept in with more difficulty; the contrary happens in strong and full grown Persons: The Dislocation of the Head is mortal, that of the *Vertebra's* dangerous, and that which is inveterate, is hard to be cured. That which proceeds from an inward Cause, is of a slower Cure, and does easily return.

Cure.] The Bone forced out, must be reduced to its place, either by the Hands, Ligatures, or Instruments, but by which of these three it shall be performed, the Nature of the affected Part will declare. 'Tis certain, that these four Manual Operations (*Extention*, *Setting*, *Binding* and *Well-placing*) must *here* be used as well as in *Fractures* of Bones.

Extention must be made so great, that there may be a cavity between the Bone that remains well, and that which hath been forced away, to the end that in the setting, the one may not rub against the other, whence afterwards are wont to rise very grievous, and sometimes incurable Accidents.

In the *Setting*, care must be had not to wrest the Bones nor the Muscles, but to keep their natural figure.

figure. Before you proceed to *binding* up the Member, endeavour to preserve the Part from inflammation and flux of Humors, and strengthen it with the following Medicines.

A strengthening Plaister.

Take Frankincense, Mastick, Bole-armonick, Dragons-blood, of each half an ounce; fine Flower, an ounce, Roots of great Comfrey, two drams; Weathers Sewet, three ounces; white Wax, as much as sufficeth to make a Plaister.

Another.

Take Litharge, Wax, Rosin, of each three ounces; being melted over the fire, add to them, of great Comfrey, Bean-Meal, Bole-armonick steeped in Vinegar, and dried, of each three ounces; Tragacanth, two ounces. Make it into a Plaister.

If the pain, or other symptomes do not necessarily require it, you ought not to loosen the Bandage before the fifth, sixth, or seventh day, and then do it with as little motion as is possible. Lastly, Lay the Part *even*, and in such a posture, in which, when found, it can longest remain without trouble.

If you find the Dislocation accompanied by an Inflammation, beware of extending the part, or doing ought to it before that be removed, which you are to do, first with emollient, and afterwards with discutient Medicines.

An Emolient Unguent.

Take the compound Oyntment of Marsh-Mallows,

lows, two drams; Hogs-greafe, half an ounce; Oyl of white Lillies, Roſes and Mirtles, as much as is ſufficient to make it into a Liniment.

A Diſcutient Plaiſter.

Take Colophony, Frankincenſe, Maſtick, Pitch, of each an ounce; Cummin-ſeeds, Fennel-ſeeds, of each ſix drams; Wax and Oil of Dill, as much as ſufficeth. Mix them, and make it into a Plaiſter.

CHAP. VI.

Of particular Diſlocations.

1. THe *Jaw-bone*, except it be in youog Children, can hardly be diſlocated otherwiſe than forwards. Sometimes it is only diſlocated in one ſide, and is eaſily reſtored; ſometimes in both, in which caſe it is difficult to ſet, and very dangerous, and often mortal.

It is very ſeldom luxated from a debility of the Muſcles; ſometimes from the laxity of the Ligaments, for the moſt part, from a too wide opening of the Mouth. If it be diſlocated but on one ſide, it ſtands a-skew, and is turned towards the ſide hurt; ſome thing is prominent, the Teeth ſtand not directly under one another, nor can they be brought together, ſo that the Mouth remains open. You muſt draw it toward the oppoſite ſide, and reduce it to its place, which is not hard to do; yea, by a ſtiff box on the Ear it hath often been reſtored.

If

If it be dislocated on both sides, then does it fall forwards, the Mouth stands open, both the *Apophyses* are prominent, the lower Teeth stand further than the upper, and the *temporal* Muscles are distended. In this case, let your Servant hold the Patient's Head firm, or hold it against a Wall; draw the Jaw-bone first downward, putting both your Thumbs in the mouth, then backward, and lastly upward.

2. The *Collar-Bone* rarely happens to be luxated, and is seldom set, but it stands somewhat out; whereby it often comes to pass, that the Patient cannot lift up his hand to his mouth, much less to his head. For restoring it, you are to lay the Patient on his back, and a stone under his shoulder, then you must draw his Arm forward and backward, as the Dislocation requires, then press the Clavicle, so raised, down into its place.

3. The *Great Bone of the Arm* (*Adjutorium*) is never dislocated backward, seldom upwards and forwards, but for the most part downwards. A certain sign of it is, if you find a roundish hardness under the Arm-pits, and on the top of the Shoulder a hollowness, and the Arm be longer, and the Patient cannot bring his hand to his mouth. It may be reduced several wayes, but these are the most convenient, and the most sure. 1. Let a strong man hold the Patient fast about the hurt Shoulder, and let another draw the Arm downwards, then lift the upper part of the Arm into its Cavity, and the Bone will be soon restored into its place. 2. Take a strong Ladder, at the foot thereof put a Stool for the Patient to stand upon, on the up-

permost step, bind something round that may just fit the Arm-pits, put the Patients Arm upon it, and draw it downward, moving the Shoulder-bone to and fro; let your Servant, mean while, draw the sound Arm downward, and withal, thrust away the Stool from under the Patient, that whilst he is thus pendulous, the Shoulder-bone may be restored. 3. Lay the Arm-pits of the Patient upon the Shoulder of a strong and taller man than himself; draw the dislocated Arm downward, so that he lifting up his own Shoulder, the Patient may remain in a pendulous posture: In the mean time, press his Shoulder downward, working the Arm to and fro, until it be restored to its due place. 4. The *Glossocomium* described by *Hippocrates*, and approved by *Paræus*, is the most convenient of all; to be seen in the Authors themselves.

4. If the *Vertebræ* of the Neck be out of joynt, the Patient is to be set upon a little low Stool, and his Shoulders pressed downward. After this, his Head is to be lifted up with both hands, turning it to and fro (yet with as little force as may be) and thus they are to be reduced. Whereupon the Patient will presently find himself at ease, and turn his head whither he pleaseth.

5. If the *Vertebræ* of the *Back* be forced *outwards*, the Patient is to be laid upon his Belly, and by two Men and two Ligatures, one tied under the Arm-pits, the other about the Hips, he must be strongly stretched out, and the *Vertebræ's* be thrust in again. If they be forced *inwards*, it is mortal.

6. If the *Os sacrum* be out of joynt, put your fingers

fingers into the *Anus*, and press it from within as well as from without, into its place.

7. A *Rib* dislocated, must not remain long out of its place, lest more grievous Accidents follow. If it be removed out of its *Vertebræ* upwards, then hang the Patient by his Arms over a Door, and so press it in. If it be out of joynt downward, the Patient must bend himself, laying his hands upon his Knees, and the Chirurgeon in the mean time, must move to and again the displaced Rib, till it be restored to its right place. If it be dislocated inward, lay a sticking Plaister on it, and often pull it away with violence; and thus sometimes it may be restored; if not, it often proveth mortal, not being capable to be reduced by the Hands.

8. The *Cubitus* may be dislocated *forward* or *backward*, *inward* or *outward*. And sometimes the *Radius* is likewise dislocated with it, sometimes it remains in its place; which by handling the part, is easily perceived. If *Cubitus* be out *forwards*, the Arm thereby becomes shorter, and cannot be bent; the Bone stands out forwards, and behind there is a preternatural hollowness. The forced-out Bone must, as well in this, as in all other kinds of dislocation of the Elbow, be speedily restored; otherwise there will follow grievous Pain, Inflammation, Feaver, Vomiting of Choler, and sometimes Death it self. Let the Arm be extended obliquely, and so far, that one Bone may not hurt the other in the setting. If the Hands be not strong enough, then bend the dislocated Arm about a Pillar or a Bed-post, and by the help of a Bandage extend it, and pressing the Bone backward, until it be replaced. If it be dislocated *backward*, the Arm will then also be shorter, and

cannot be here, the Bone will stand out behind; and before there is a preternatural cavity. If it be *inward* or *outward*, there are the like signs, only the Tumor will be in the place, to which the Bone hath been forced, whereas the hollowness is there, whence it hath been forced. All these *three* dislocations may be easily cured by a convenient extension, if they be not inveterate. The same is to be understood of the *Radius*, when forced out of its place.

9. The *Hip* may be put out of joint four manner of wayes, chiefly, *inward*, *outward* and *forward*, but seldom *backward*. If *inward*, the Leg is longer, and moveth with difficulty, the Knee is turned outward, and the head of the Thigh-bone by the hands may be perceived in the Groin. As it is difficult to put in, so easily doth it slip out again, whereby the Part affected is wasted, and the Patient lamed. To reduce it to its place, lay the Patient upon the midst of a Bench or Table, between his Legs put a strong stick, wound about with Linnen, and upon it let him stifly stretch out his Leg, and the Chirurgeon in the mean time with his hands set it. If outwardly dislocated, the Leg grows shorter, and the Foot is turned inwards. The Patient can then indeed bend his Leg, but hardly bring it to the ground. Though it be not set aright, yet the pain vanisheth of it self, and the Patient in time is able to go without Crutches. Lay him on a Bench or Table as above, let the Leg be strongly extended, either with hands or Bandage, and mean while reduce it into its place. If the Hip be forced out *forward*, the Groin is swoln, and the Buttocks fallen, the Leg is neither longer nor shorter, nor

cannot

cannot be bent but with trouble, and the Urine is suppressed. Though it be not set aright, yet the Patient in time will be able to go well enough upon it, though sometimes it falls out that he must somewhat trail his Leg after him. To restore it, let the Patient lie on his sound side, and strongly stretch out his Leg, press it into its former place, and in case the hand be too weak, thrust it in with your Knee. If it be dislocated *backward*, the Patient can neither stretch out, nor bend his Leg, nor is he able to bring his Heel to the ground, and if he should force himself to do so, he would fall backward; the Leg is shorter, there is a hollowness in the Groin, and if the Buttocks be pressed upwards, you shall find an unusual swelling. Though it be not put in, yet the pain will in time vanish, and then the Leg may be bent again, but it remains shorter and straight, nor is the Foot turned inward nor outward. Lay the Patient on his Belly, and strongly extend his Leg, mean time apprehend the Thigh-bone above the Knee; stretch it outward from off the sound Leg press the Head into its Cavity, in which yet it will not stay, if thenceforth the Patient do not keep himself very quiet.

10. The Dislocations of the *Tibia* and *Fibula* are cured after the same manner as those of the *Cubitus* and *Radius*.

11. If the *Knee-pan* be out of its place, let the Patient stand upright, and press it in again; lay on the side whence it hath been forced away, a hollow Splint, answerable to the shape of the said *Pan*, and below in the cavity of the Leg, put one or more compressing Splints, binding the whole Leg so stiff, that the Knee may not bend.

CHAP.

CHAP. VII.

Of Ruptures.

HAving thus roughly handled the bony and hard parts of the Body, it now follows, that I treat the soft and fleshie more gently, and describe their *Symbesis* or re-unition again. Therefore I begin with the broken *Peritoneum*, which sometimes gives way to the Intestines, at other times to the Cawl, and not seldom to both, to get out of their natural place into the groins or *Scrotum*, there causing a Rupture called *Enterocele*, or *Hernia Intestinalis*, if the Guts come out; an *Epiplocele*, or *Hernia Omentalis*, if the *Omentum* or Cawl be out.

The *Peritoneum* is made up of two strong, but soft Membranes, which do so contain whatsoever is included in the Belly or lowest Cavity, that when sound, nothing can fall out. In Women, the *Os pubis* is its utmost limit: In Men, its outermost Membrane reaches further, and constitutes the first proper Coat of the Testicles. In the Groins, it comprehends the Seminal Vessels as in a Sheath, called *Processus*, or *Productio Peritonei*. This being stretched, or enlarged, or coming to burst, is the proximate cause to the lately mentioned Ruptures. The Groins therefore are the usual places of Ruptures: But do not imagine, that the *Peritoneum* cannot be distended or burst in other places, and there to cause a Rupture. It happens sometimes above the Navel, yet seldom: *Beneath*, and *on the side* of the Navel, far above the Groins, I have not only seen it often

often with many others, but seen it ordered and dressed just like an Abscess, the Chirurgeon giving no other reason for his mistake, than that it was not the place of Ruptures; which those that love the Art and their own Honour, may take notice of.

Most times the *Ileon* falls down, yet sometimes the other Guts come out with it, and fall into the *Scrotum*; which cannot come to pass by a simple distention of the abovesaid *process*, but that necessarily in all such great Ruptures it must be broken.

The *Causes* which make the *Peritonæum* to burst or to dilate, are Falling, Leaping, Blows, bearing of heavy Burdens, strong Vomiting or Coughing, difficult going to Stool, Winds retained, and all vehement motions of the Body.

Signs.] The Tumor is sometimes bigger, sometimes lesser, sometimes altogether vanisht, but with the least motion returning. Though the Cawl or Intestines should be fallen down never so much, they may easily, without any pain be thrust in again, unless Wind or Excrement hinder it, in which case the Rupture is very painful.

If the Intestines be full of Wind, the whole belly is tense; you may hear a noise, and the Patient breaks Wind upwards and downwards. If the Excrements be grown hard, the Patient goes with difficulty to Stool, and the swelling, weight and hardness little by little increaseth. If the *Peritonæum* be only relaxed and widened, then the Tumor from little becomes bigger by degrees; but if it be broken, it suddenly descends.

Prognosticks.] In little Children, Ruptures are easily cured; in aged people, slowly or not at all, especially if the *Peritonæum* be burst. If the Intestines

stines be filled with Wind or Excrements, there follows pain; and if that be not suddenly removed, an Inflammation, Gangrene, and at last Death it self.

Cure. Lay the Patient on his Back with his Legs on high, and a little asunder, by which it often comes to pass, that the Cawl or the Intestines return of themselves into their former place; but that not happening, press them in gently with your fingers. And if you cannot effect this, by reason of Wind or hardned Excrements, then use the following Medicines.

Where the Excrements are indurated,

Take Roots of Marsh-Mallows, two ounces; of white Lillies, one ounce; Leaves of Mallows, Violets, Pellitory of the Wall, of each half a handful; Flowers of Camomile and Melilots, of each two pugils; Bran, half a handful; Boil them in water, and to the Liquor,

Add of

Barlie and Bean-meal, of each three ounces; Linseed and Fenugreek, of each two drams; Oyl of Roses and white Lillies, Ducks-Fat, and Hens-Fat, of each an ounce. Make it into a Cataplasm.

In case this Cataplasm be not sufficient, or seems not to be so, then bathe the Patient two or three hours in Oil, sweet Milk, or Water, wherein Emollients have been boyled, not forgetting in the mean time Clysters and Purges.

Against Wind.

Take Oyl of Camomile, Rue, of each one ounce;

Oyl

Oyl of Nard and Dill, of each three drams; Spirit of Wine, two drams; a little Wax: Make it into an Oyntment.

Another.

Take Oyl of Wormwood, one ounce; Oyl of Nard and Nutmeg expreſt, of each half an ounce; Oyl of Mace and Carraways diſtilled, of each one dram; Malmſey, an ounce and half: Boil it a little, then add to it as much Wax as is ſufficient to make it into an Oinment.

Inwardly uſe the ſeeds of Anniſe, Fennel, Carraways, and other Medicines diſpelling Wind, which alſo are to be mixt in the peculiar Clyſters requiſite to this purpoſe.

Alſo the Cummin-Plaiſter, uſed by ſome, may here do good ſervice.

Or,

Take the Scyptick Plaiſter of *Crollius*, Gum-Caranna, Tacamahac, of each half a dram; *Ol. Philoſophorum*, and Caraways diſtilled, of each an ounce: Make it into a Plaiſter.

Theſe impediments being thus removed, and the Cawl or Inteſtines reduced to their place, you muſt then with convenient Bands or Truſſes ſo long keep them in, until the burſt *Peritonæum* be ſo firmly grown, either together again, or to the Muſcles of the Belly, that nothing can fall out of it any more. And this you will the ſooner obtain, if you outwardly lay on it the following Plaiſter, and inwardly aſſiſt Nature with appropriated Medicines. But here remember, that in old Ruptures, and aged People, the edges of the burſt *Peritonæum* are ſometimes callous, that how fitly ſoever they are *brought* together, yet they can never *grow* together; and in that caſe Bands muſt

do

do the best; but in young Children they easily grow together; and here Trusses are better than the best Bands: Those that are not acquainted with them, must consult those that are

A Plaister for a Rupture.

Take Roots of the great Comfrey, Bistort, of each an ounce and half; Round Birthwort, two drams; Galls, Cypress Nuts, Pomegranate Rinds, of each one dram and half; Flowers of Balaustians, red Roses, Oak Leaves, of each half a dram; Aloes, Dragons Blood, Acacia, Earth-worms dried, Frankincense, Mastick, Myrrhe, Sarcocols, Mummy, of each one dram; Pitch, Colophony, Burnt Talk, of each two drams, Lytharge, Bole-Armonick, *Lap. Hematitis*, prepared Steel, of each one scruple, Venice Turpentine, as much as is sufficient to make a Plaister.

An Apozem, that the Patient may take five ounces two or three times a day.

Take Osmund Royal, Rupture-wort, of each one handful, Roots of the great Comfrey, Bistort, of each one ounce and half, St. Johns-wort Flowers, one handful, Aniseeds, two drams, Boyl them in Red Wine, and to a pint and half of the strained Liquor,

Add,

Of the Syrup of Comfrey of *Fernelius*, two ounces: Make it an Apozem.

Pills

Pills that the Patient may take five or six of, mornings and evenings.

Take Mummy, one dram; Galbanum diſſolv'd in Vinegar, two drams; Myrrhe, Filings of Steel, dried Hares-Dung, of each half a dram; Powder of Earth-Worms, two ſcruples: Make them into Pills about the bigneſs of a great Peaſe.

If by a Wound, the Cawl or Inteſtines come out, you are to endeavour to put them in again, before they loſe their natural warmth or colour by the Air, otherwiſe there will remain but ſmall hopes of recovery.

If the Inteſtines be wounded, then with a waxed Thread ſtitch the Lips together, and with a gentle hand return it into the Body; as alſo the *Omentum* ſlipt out, unleſs it ſhould have loſt its natural colour and warmth, in which caſe, you muſt tie it in the place where it is found, cutting off the part that is putrid, and reduce it into the Belly, leaving the Thread hanging out of the Wound, that after ſuppuration, it may be conveniently fetcht out.

And then you muſt ſtitch together the Wound of the Belly and the *Peritonæum*, which is to be done after this manner; Take a Needle, thred it with a waxen Thread, thruſt it from without through the Skin and Muſcles unto the very *Peritonæum*, leaving it on this ſide untoucht, but lay hold on it on the other ſide; pierce it through, and the Muſcles and the Skin alſo, drawing the Lips together, then paſſing over the ſpace of an inch, thruſt in the Needle on the ſame ſide again, on which you drew it out laſt, through the Skin and Muſcles,

Muscles, leaving again the *Peritonæum* on the same side untouch't, but holding it on the other side, thrust it through together with the Skin and Muscles, and so on: Then seeing that by reason of the continual motion of the Belly, your stitches may easily be undone, the rather, because the haste, sometimes here to be used, will not permit to make them with exactness, it is always necessary to apply to the Wound a sticking-plaister.

Among these Ruptures is to be reckoned the *Navel-rupture* (called *Exumphalos*, or *Hernia Umbilicalis*) which proceeds from the same cause, and is cured by the same means: Only you are here to observe, that upon the Plaister, you must put Bolsters of Leather, or other hard things, and this according to the bignes of the Rupture, that by this means it may be sufficiently and perfectly kept in.

It is worthy noting that the *Peritonæum* seldom bursts in this part. I have divers times found and shewed in dissected Bodies, that the Navil, together with the Intestine following, stood out bigger than a mans Head, insomuch that the right Muscles of the Belly were presst to the side, and severed from one another, and yet was the *Peritonæum* but stretched, and no where broken.

These are the simple and compounded Ruptures, that are commonly described, but *Practice* shews us many others, not mentioned by Writers. For, *Experience* hath taught me, that the *Peritonæum* may burst in the back-part, and there cause a Rupture. We also find, that the *Processus Peritonæi* near to the Groins, may come

so to be lacerated, that the Guts press not into the *Scrotum*, but between the Skin and Muscles falls down toward the Thigh. Besides, we have more than once found, that the *Vas deferens* was fallen twisted into the *Scrotum*, and had there made a Rupture, which happening, it may with the Hands be easily reduced, yea, goes in of it self by lying backward, without any further inconvenience.

The manner of cure hath nothing peculiar in it self, but that you contrive such Bands that may reduce the parts fallen out into their right places without prejudicing the sound ones.

Among these Ruptures are commonly reckoned divers *Swellings*, that belong to other Chapters, where also we intend to describe them. But to comply with young Students, I shall here enumerate those that in the modern Practice do occur, Namely,

1. *Entero-cele*, *Hernia Intestinalis*, or the falling down of the Guts into the Groin.
2. *Epiplo-cele*, *Hernia Omentalis*, or the falling down of the Caul.
3. *Omphalo-cele*, *Hernia Umbilicalis*, or the Rupture of the Navil.
4. *Pneumato-cele*, *Hernia Ventosa*, or the Wind-Rupture.
5. *Hydro-cele*, *Hernia Aquosa*, Water-Rupture.
6. *Bubono-cele*, Swelling of the Glandules in the Groin.
7. *Cirso-cele*, a Swelling of the Seminal Vessels in the *Scrotum*.
8. *Hernia Veneris*, an hardening of the Testicles by an impure *Concubitus*.
9. *Hernia Humoralis*, a Repletion of the Testicles with unnatural Humores

10. *Hernia Carnosa*, a fleshy Rupture.

11. *Bronche-cele*, *Hernia Gutturis*, a swelling in the Throat.

12. *Spermato-cele*, figuratively so called by me, when the *Vas deferens* falls twisted into the *Scrotum*.

CHAP. VIII.

Of the falling down of the Matrix.

THe *Matrix* does not easily fall down by Relaxation, much less by Laceration of her broad Ligaments, as most Writers imagine, from hard Labour, or by an indiscreet drawing away of the *Secundine*. Others with me have seen that the bottom of the *Matrix* hath been plainly inverted in *pudendis*, so that the inward part shewed it self as the outward. We have also found (especially in those that were subject to Costiveness or Belly-ach) that the membranes of the *Pudenda* were so far stretcht out, that the unskilful have taken it for the *Matrix* it self, and do so still. For though many Authors have dared to write that the Womb may be cut out without danger of life, seems altogether impossible to a skilful Anatomist.

To cure this Disease, lay the Patient on her back, with her Knees on high, and Legs asunder, then take a Wax-Candle of a competent thickness, mix therewith some *Castoreum* or *Assa Fœtida*, and with it gently press the Womb inward, and having fastened the Candle with a Bandage, apply out-

outwardly to the Belly the *Emplastrum Barbarum*, or the following:

Take the Roots of Cyprus, Bistort, of each a dram; Galls, Acacia, of each half a dram: Cypress-Nuts, Date-stones, Myrtle-Berries, of each one dram; Pitch and Colophony, as much as sufficeth to make it into a Plaister.

Then presently enjoyn the Patient to lie still, with the Legs cross, and to beware of speaking aloud, of scolding, and of whatever may occation coughing or sneezing.

Here great care is to be had, that your Wax-Candle be not too thick, to the end that by its continual friction it may not cause *Fluxum Album*, whereby the strength of the Body would certainly come to decay. Yet because even by the greatest care and circumspection, this inconvenience will hardly be altogether or always prevented, therefore those do very well and discreetly, that long-wayes perforate the Candle, and thereby give a convenient passage for the humors flowing that way.

CHAP. IX.

Of the falling down of the Fundament.

IF the *Gut* be sunk down, annoint it with Oyl of Rose and Myrtle, mixing a little Powder of Galls amongst it, and with your Fingers and a small Linnen-Rag, put it in. If an Inflammation hinder the reducing it, then bathe the *Anus* with these Medicines,

Take Flowers of Elder, Camomile, and St.

Johns-wort, of each a handful; Red Roses, two pugils, the tops of Wormwood and Melilot, of each half a handful: Boil therein Milk and Red Wine, and bathe the part.

Here especially care is to be had, that no external cold may come to the fallen out *Anus*, for then you may sooner than you are aware of, be surprized with a Gangrene. Wherefore do your utmost to put it in again with speed, and in the mean time, endeavour, with the above-prescribed Bathing and warm Linnen Rags, to preserve its natural heat.

There is yet another, though in appearance ridiculous, yet in reality a good way of reducing the *Gut*. With a strong hand strike five or six times the Patients Buttocks, and thereby the Muscles, called *Ani levatores*, will presently draw the *Anus* into its right place again. But before the Patient be thus chastized, take care that the *Gut* may first be annointed with Oyl of Roses, or of Myrtle.

CHAP. X.

Of the second Operation called Diæresis, *or the separation of what was united together.*

Hitherto we have joyned together again what had been disjoyned, now it follows, that we separate what is united, and treat of the *second* Manual Operation, called *Diæresis*, which teacheth us the manner of *Cutting* and *Burning*, and that both in the *hard* and *soft* parts of the Body.

In

In the *soft*, the Cutting is called *Incision*. In the *hard*, it is performed four manner of wayes; By *Terebration* or *Perforation*; by *Rasion* or Scrapping; by *Lhuation*, or Filing; by *Serration*, or Sawing. Burning is done either by an *Iron* (which is the *Actual* Cautery) or by Medicaments (called the *Potential* Cautery) as shall be declared particularly hereafter.

CHAP. XI.

Of Opening a Vein.

BLeeding (one of the greatest Remedies in the Art of Physick) is sometimes highly necessary, but sometimes so dangerous, that it ought not to be used without very urgent Causes. Here therefore I think it will be better somewhat to digress for fuller information, than to leave the unskilful in their error.

The *Blood* is the darling of Nature, by whose assistance she performeth all her Operations, and which can hardly be drawn from her without damage, yet does Art require, that those who meddle with it, being neither venturous nor timorous, but discreet and courageous, and making out of necessity a virtue, do sometimes proceed to the opening a Vein; yet for no other than these *four* following causes.

1. In a *Plethora*, or super-abundance of blood, that by this means Nature may be eased of her too heavy burden, and the innate heat preserved from suffocation.

2. For *Revulsion* sake, when the blood and the therein mingled humors, by flowing too plentifully to this or that part, hinder the Cure: Here you are alwayes to chuse a Vein of the opposite side, and that sometimes the farthest distant, sometimes the nearest.

3. For the *derivation* or conveyance of the Blood (which is already got into the part, but is not yet altogether setled there, nor extravasated) into another place, in which case a Vein is to be opened the nearest to the part.

4. For *Refrigeration*, when the heat of the Blood is so excessive, that it cannot be allayed by cooling Medicines, or not time enough.

These limits are too narrow for some, who will needs take into those a *fifth* cause, which they make the *Corruption* of the Blood, held by them to be so great an inducement for bleeding as any of the four by us recited; to the end, *say they*, that Nature being rid of part of what is corrupt, may be the better able to correct what remains.

But I much wish, 1. That they could make this discharge without the loss of that strength which is so highly necessary. 2. That they would be present when their Patient is to bleed, and precisely tell to what degree of corruption his blood is come, that so the Chirurgeon may know how much of it he is to take, and how often, forasmuch as they will not allow that bleeding is good in all sorts of the Blood's corruption, but in that only which is not gone considerably far. 3. That they would declare, why they will have cured the greater corruption by purging, and the lesser by bleeding, since that they give to the one as well as to the other (and that duly) the name of *Cacho-Chymia*. Let them

them shew, that things differing only *secundum magis & minus*, do differ in *specie*, and so require specifically different Remedies.

Others proceed yet further, and shed innocent Blood in all sorts of Fevers, without any consideration of spots of the Plague, or of Poison in it; thus freeing themselves from a great deal of labour and trouble, otherwise caused to the Physitian from the variety of Fevers. But because the nature of all Poyson and Malignant Humors is continually to assault the Heart, and suddenly to prostrate the strength of the strongest persons, and since bleeding doth likewise *hurt*, not only diminishing strength, but also drawing the malignity toward the Heart, and driving in again, for the oppression of Nature, what she had thrown out for her relief: I do intreat and warn all the Practisers of our Art, That as they love the quiet of their Mind, and the good of their Patients, they would beware of bleeding in Pestilential and other Malignant Fevers, as also in all cases that may befall people by poyson, either inward or outward.

The *French*, *Italians*, *Spaniards* and *Portugueses* (great Blood-letters) will, I expect, tell me, that Nature, wisht by bleeding she hath vent, and is somewhat discharged, shall be better able to throw out the remaining evil. And this seems to be true, for the blood indeed receives Air, that the spirits may the better flie away, and is robb'd of that strength which it so necessarily wants, whereupon Nature exchangeth the Life of the Patient for death, and extorts teares from the by-standers.

Without alledging other Reasons, they ground themselves upon Experience. And it were to be wished they had that ground indeed; for we find

such Patients of theirs, who in the morning were in no danger, even after but the taking away of five or six ounces of Blood, to be cold and stiff at night. Whence it may easily be collected, what it is they call *Experience*, *viz.* if the Patient by chance escape death, then *Bleeding* must have the honour of it; but if he die, as for the most part, then the maligoity of the Disease was the cause of it. Wherefore I alledge Experience against Experience, and praise God Almighty, that he hath vouchsafed to furnish all those, who without envy, passion, or slavish dependance upon others, will duly consider Diseases with surer means.

The more moderate sort of them would have *Bleeding* only administred in the beginning of the Disease, and before the Maligniry appears outwardly. This I shall willingly allow them, 1. In very hot Countreys. 2. In a Plethorick Body. 3. If the humors flying to the head, cause any grievous symptoms there, in which case, bleeding in the Hand or Foot may be, I think, very beneficial. Otherwise those that use it in all bodies, and without distinction in these cold and moist parts, will find the ill effects of it, and be puzled withal to give a reason for their Practice, allowable by Art; the rather, because, by their own confession, they dare not use this their Darling of Bleeding at certain times, but find themselves best in the use of Sudorificks and cooling Drinks. But enough of this.

Now how *many Ounces* of Blood ought to be taken at once, the degree of the Disease, and the Patients more or less strength, will indicate. And 'tis better too little than too much. I have never taken more from the strongest and most plethorick

Person under my Cure, than twelve ounces at once, chusing rather, in case of need, to let out twenty ounces at two times, than fifteen at once; by which method I have found good success.

As to the *season* of the *year*, and the *hour* of the day, little regard needs to be had in those Diseases, wherein bleeding cannot be long deferred without danger, as in Pleurisies, Squinancies, &c. Otherwise, the Spring and Autumn, and the Morning are best.

The Veins that are wont commonly to be opened, are these; In the Fore-head, the *Vena frontis*; in the Temples, the *Vena Temporalis*; in the Mouth, the *Vena sub lingualis*, or *Ranularis*; in the Neck, the *Jugularis Externa*; in the Arm, the *Basilica*, under which lieth an Artery; the *Mediana*, under which lieth a Nerve, and under both of them a Tendon; and the *Cephalica*, which hath under or near it, neither Artery, Nerve nor Tendon, and therefore may safely be opened. This last hath but one small branch that runs outward to the Hand, whence it hath got the name of the *Head Vein*. Without this consideration, it little matters which of these three be opened, in regard that about the Arm-pits they all acknowledge no more but one Branch. In the Hand, between the little Finger and its Neighbour, the *Salvatella*; in the Foot, the *Saphena* and *Ischiatica*.

The *manner* of bleeding is so well known, that I think it needless here to describe it: Only I could wish that some of those that let blood, would take care somewhat better to guess of the number of ounces of Blood they take from their Patients, that so we might not find 22, 16, 18, yea, 22 ounces drawn away instead of 6 or 8, that were

were prescribed. To prevent so intolerable a mistake, I would advise, that small Porringers of Tin or Copper were made, in which the number of ounces were marked; though expert Masters do not at all need them, as knowing that Blood is really weightier than it outwardly seems.

CHAP. XII.

Of the opening of Abscesses or Impostumes.

THe Humors here and there gathered, do often cause a swelling, which Nature is not always able to dissipate, unless Art do succour her by fit means; which if fruitless, you must use suppuration, and then stay till she of her self make an opening, except there be a necessity to hasten one, or even not to stay for a perfect suppuration: As, 1. When the matter being very sharp or malign, upon which happens a corrosion of the neighbouring parts, and a corruption of the Bones, Tendons or Nerves. 2. When it may affect a nobler part. 3. When it lieth in the Joynts. 4. When it is cast out by a *Crisis*.

Before you proceed to the opening, you are to consider, whether the matter be contained *in its own proper Tunicle*, or whether it be without any *Tunicle*. If *without* any, then make your apertion with a right Line, observing the Fibres of the Muscles. *For example*; In the Head, according to the position of the Hair, long-wayes; in the Eye-lids, transverse, in the Temples, the Nose, Neck, Breast, Back, Arms, Feet, Joynts, long-wayes;

wayes; in the midst of the Abdomen, let it be long-wayes; in the sides of it somewhat oblique; In the Groins, transverse; but not very deep, by reason of the subjacent seminary Vessels. Alwayes beware of touching any great Vein, Artery or Nerve, though the Fibres be cut across, lest from a lesser evil there should arise a greater.

The propereſt place for the opening, is the most raised and softest part of the Abscess, if possible in the depending, that the purulent matter may the more conveniently be discharged: To which end also you are with a Tent so long to keep open the wound, until the part, being altogether cleansed of its preternatural Humors may return to its former Functions.

In the opening, thrust not in the Launcet too deep, nor further into the Cavity than to the matter, and as soon as you perceive *that*, draw it a little back, and turn the point upward, making your opening through the Skin so big as may afford the contained matter a free vent.

If the Abscess be included in a Tunicle, if small, make the incision long-wayes; if big, then make a double incision, that is, cross-wayes, and beware of touching the Vesicle, otherwise you must expect a foetid and almost incurable ulceration. This being well done, press out with your Fingers the Vesicle, which seldom or never sticks to the Skin, and easily follows, cut off the little Artery by which it is fed, and have a care, that not the least Particle of the Bag may remain on it, lest it gather again.

Forasmuch as in this Operation I find that Chirurgeons differ in the Instrument they ought to use, some chusing the *Launcet*, others the *Potential Cautery*,

tery, and extol it far above the former: I think my self obliged to declare here what I judge of this matter.

The *Potential Cautery* hath this advantage, that it doth not terrifie timorous Patients, nor is painful to the tender, especially joyning with it the present and known good Remedies: For *unquenched Lime* mixed with *Holland Sope*, worketh deep enough into the flesh, yet much gentlier than the corrosive of *Ambr. Paræus*. But it hath these inconveniences:

1. That, according to the tenderness or strength of the Skin or Bodies, sometimes it eats in deeper than needs; for we have found by experience, that in some it hath eaten through the Skin and Muscles to the very cavity of the Belly; in others, irrecoverably wounded the processes of the *Peritonæum*, together with the seminal Vessels therein.

2. Commonly it spreads it self in length and breadth somewhat further than you would have it, especially if it be to be applied under the Arm-pits, in the Groin, or in the Joynts; for it no sooner grows warm, but it melts, and so spreads abroad, notwithstanding the Plaister with which the Surgeon designed to bound it.

3. There are necessarily required some hours (in some bodies more, in others less) before it can perform its operation; and this the Humor will not always bear, especially if it be malign.

4. And the Scar falls not presently off; and if you would give a present vent to the Humors, you will be obliged still to make use of a Launcer. Be as circumspect as you can, I am sure, you will hardly avoid these inconveniences.

On the other hand, the *Launcet* hath this trou-

ble,

ble, that many people are affrighted at it, and that it is painful: But the fear may be prevented by ſilence, and the pain is little conſiderable; mean time you have theſe advantages:

1. That with the *Launcet* the Apertion may be made as long and as deep as the Chirurgeon deſireth.

2. The Matter is ſuddenly diſcharged, and the Patient hath preſent relief.

3. The unconcocted remainder may be the ſooner concocted, by aſſiſting Nature with convenient Remedies, both inwardly and outwardly.

4. You will not be troubled with a long gleet, which if it happens, the fault is aſſuredly in the Chirurgeon. For almoſt all Tumors that appear behind the Ears, in the Neck, under the Armpits, or in the Groin, ſpring from indurated Glandules, replete with a preternatural humor; theſe Glandules are all included in their own Membranes; which being toucht, either with a Launcet, or with Corroſive Medicines, there muſt needs follow a gleet (for 'tis impoſſible that the Glandule ſhould be able to preſerve it ſelf, or the contained humor, its Tunicle being divided) which will continue until the whole Glandule and Tunicle are both conſumed.

CHAP.

CHAP. XIII.

Of the Separation of Parts unnaturally joyned.

WIthin the *Ear* is a thin, but strong *Membrane* called the *Drum*. This being overgrown with another preternatural Membrane, or a Caruncle, the Patient loseth his hearing; which is not at all to be cured by any Manual Art, and difficultly by Medicines. But if the Cavity of the Ear come to be closed up with a Membrane, and thereby the Hearing lost, then is it to be opened with a fit Instrument, and as soon as may be, cicatrized.

That many have been born with the *Anus* imperforated, and the Intestine covered with a Membrane, hath been often observed; which if the Membrane be tender and thin, is to be opened with the Fingers; if thick, with a Lancet, long-wayes; and afterwards kept open with a small leaden Pipe, and drying Medicines.

The *Pudenda Virginum* are sometimes also closed with a preternatural Membrane, which causeth most grievous Accidents, when they are grown marriageable. Sometimes the part is altogether grown together; sometimes upon an ill-treated *Ulcer*, *coalescunt Labia & Membrum illud inoptum reddunt congressui virili.* Sometimes a preternatural Caruncle shuts the *Os Vulvæ*. The two first are to be opened long-wayes with a sharp Instrument, in part wound about with linnen Rags,

and

and then cured according to Art. To the last, which causeth most difficulty, you'l need in the Operation a *Speculum Matricis*, and in the latter end of the Cure, a small Pipe, perforated throughout in length, to promote the Cicatrizing.

Here we shall take leave to speak something of the *Tongue*, not of a long and sharp one, for which I have found either none, or at least, no better remedy than contempt, patience and commiseration, but of those, that being short and tied, deprive Children, first, of sucking, afterwards of speaking: Which is easily remedied, by loosening the string of the Tongue, by cutting it transverse with a pair of Scissars, and annointing it afterwards with Honey of Roses three or four times a day. In the cutting, the neighbouring parts and veins must be carefully shunned; and sometimes the Nerve of the sixth pair or its Branches run so near the String, that by a deep incision they may be easily hurt, and the Patient fall into sad Accidents. Here let the Chirurgeon know, that of an hundred Children, scarce one needs this Manual Operation; and that those Midwives are as rash as ignorant, who in all new-born Babes, do forthwith dilacerate this String, whereby the sound parts being hurt, they are often deprived of their necessary sucking, and by subsequent symptomes, of their life.

CHAP.

CHAP. XIV.

Of the Paracenteſis.

ALthough the word *Paracenteſis*, ſignifies all Punctures, yet cuſtom hath appropriated it ſolely to the opening of the Belly in a *Dropſie*, and to that of the Breaſt in an *Empyema*, though more to *that* than to *this*.

This Manual Operation is ancient, and full of danger; yet ſometimes preſerves the life of the Patient. Nature and Succeſs have emboldened us now and then to make uſe of it; but Experience hath taught us, that the greateſt difficulty conſiſts herein: 1. That the parts debilitated, and deſerted of their natural heat, do eaſily, after opening, mortifie. 2. That together with the Water, iſſues out likewiſe the Spirits. 3. That the preſſing water can hardly be ſo kept in, but it will run out in deſpight of the Chirurgeon; and if, the better to cloſe the Wound, you do forcibly preſs in the Pipe, a Gangrene ſoon and eaſily enſueth.

Who therefore expects a good iſſue of this Operation, muſt uſe it only upon a Body that is not emaciated or waſted; in a Dropſie that is recent (or at leaſt, when the Tumor in a ſhort time hath riſen to a great bulk) and which, upon the uſe of proper Remedies, would not preſently be removed; in ſuch Patients that are not moleſted with a Fever, or with difficulty of breathing, and where the noble parts are yet ſound and uncorrupted, and in perſons of a middle age, ſince in children and in old people it ſucceeds not ſo proſperouſly.

As

As to the *Place*, If the Navil ſtands out, ſeek for no other, but make your opening therein: But if that be much drawn in (as it commonly happens to be in Hydropical Perſons) it is not proper for it: In which caſe you muſt take for your place three inches beneath the Navil, not in the white Line, which, to my wonder, I find propoſed by ſome, but, on the ſide of the *right Muſcle*, in the Muſcle called *Oblique Deſcendens*: Mark it firſt with Ink, and then make a ſmall apertion through the Skin, Muſcles, and *Peritonæum*, taking great care that the *Omentum*, or Guts, be not wounded; which alſo, by reaſon of the interpoſing Water, cannot eaſily be hurt. He that will be very careful of the opening, muſt make it according to the *Ductus* of the *Fibræ*, a little obliquely downwards (according to this ſhape \) in the left ſide; and (according to this, /) in the right ſide.

As ſoon as you perceive Water to come forth, take a Golden, Silver, or Leaden ſmall Pipe, that is, 1. Smooth. 2. Furniſht at the Head with a Button or Wings. 3. Perforated on the ſides with three or four holes. 4. No longer than the thickneſs of the diſſected part, that is, an inch broad. 5. Somewhat crooked at the end. 6. Exactly fitting the ſize of the Orifice. Put this into the Apertion, lay over it a ſticking Plaiſter (others take a Spunge, or a four-double linnen Rag) bind up the Patient, and let him reſt two or three hours; then open the Bandage again, and take away one, two, three, ſeldom or never more pints of Water, and ſo repeating it once or twice a day, till the water be *almoſt* all diſcharged. You muſt not take away all at firſt, for the chilneſs of

the parts, following so great an Evacuation, very often causeth death. The Pipe is not to be taken out, but must remain all the time of the cure in the Wound, which you must at length heal up according to Art.

For the opening of an Hydropical Belly, this is the safest as hitherto practised way, that is left us by the Ancients; but the industry of their Posterity hath invented for us a much convenienter Instrument, whereby we not only do avoid many of the above-mentioned difficulties, but also with less trouble preserve the lives of otherwise incurable Patients, freeing them from stretching, pain and trouble, according to our pleasure, or the degree of their strength.

This never enough commended *Instrument* was first of all brought out of *Italy*, by the experienced Chirurgeon of this City, Mr. *Jacob Block*, and by him put into practice, to the great benefit of many Patients.

Commonly he chuseth the place lately pointed out by us, *viz.* about three inches below the Navil, and perforates the Skin, Muscles and *Peritonæum*, unto the very Water, taking away no more at once than a quart.

That done, he draws out his Instrument again, puts nothing upon the made hole but dry Lint and a sticking Plaister, whereby he sufficiently hinders the running out, against your will, of even a drop of Water; for, upon the withdrawing of the Instrument, the open'd Skin, Muscles and *Peritonæum* are easily by their natural motion so far drawn asunder, that the Holes cannot any more exactly close upon one another.

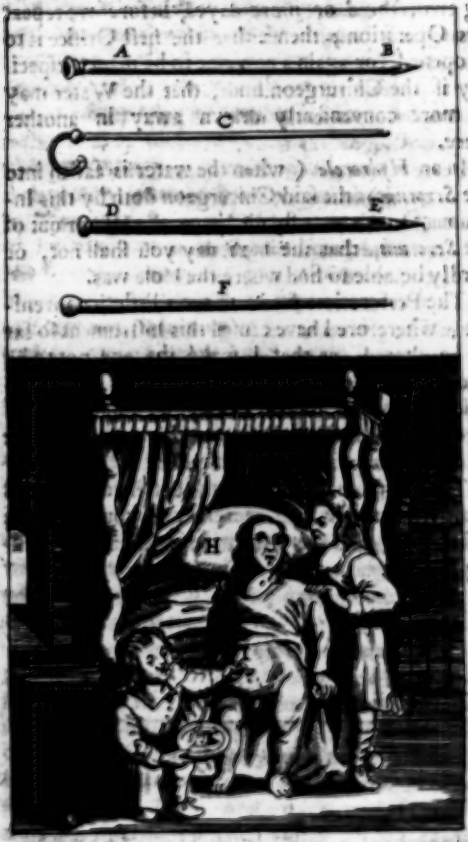
This being once performed, we regulate our selves

ſelves according to the ſtrength of the Patient, ſtaying two, three or more dayes, before we repeat this Operation; then either the firſt Orifice is to be opened, or again a new one to be made, eſpecially if the Chirurgeon finds, that the Water may be more conveniently drawn away in another place.

In an *Hydrocele* (when the water is fallen into the *Scrotum*) the ſaid Chirurgeon doth by this Inſtrument ſo dexterouſly diſcharge the Water out of the *Scrotum*, that the next day you ſhall not, or hardly be able to find where the Hole was.

The Perforation ſeems to me a little inconvenient; wherefore I have cauſed this Inſtrument ſo far to be altered, as that I make the end not to be wrought round, but ſharp on both ſides, Launcet-wiſe, by which means it may be ſooner thruſt through the Muſcles. But then, *his* may be made of Silver, *mine* muſt be of Steel.

To the end that you may the better comprehend what we ſay, we ſhall repreſent to your view the Inſtrument, and the Operation it ſelf, in the enſuing *Figures*.


A
B
C
D
E
F
H

Explication of the Figure.

FIG. I

A. The Silver Pipe of Mr. *Jacob Block*, with a round point end.

B. The little hole, through which the Water passes out of the Belly into the Pipe.

C. The Stiler or small Wire, to clean the Pipe with, after the operation.

FIG. II.

D. The Steel Pipe of the Author, with an end like a Launcet.

E. The little Hole, as before.

F. The Iron-Wire, as before.

FIG. III.

G. The Bed on which the Patient sits.

H. The Hydropical Person.

I. The Pipe thrust into the Cavity of the Belly through the right Muscle, where the above-commended Chirurgeon affirms that the made Hole is sooner healed up.

K. The Bason to receive the Water running out.

L. The Chirurgeons or Assistants hand.

CHAP. XV.

Of the Opening of the Breast.

There is sometimes collected in the Cavity of the Breast, a *watery* or *purulent matter*.

The *Water* gathers either by some *Lymphatick Vessels* burst, or from an unconcocted waterinesse of the Blood. The *purulent Matter* follows upon inflammations of the Throat, or Lungs, or a Pleurisie, *&c.*

If it be Matter that is collected, it is called *Empyema*; if Water, *Hydrops pectoris vel pulmonis*, the Dropsie of the Breast or Lungs.

The *Marks* of the *Water* are, a dry Cough, a painful heavinesse, a difficulty of Breathing, even to Suffocation, great Thirst, little Appetite, a pale Look, and sometimes a swelling of the Legs, now and then accompanied with a Feaver; and when the Patient turns himself, you may perceive a rumbling noise.

The collected *Sanies* may be known by the following *Signs*, When the inflammation of the Lungs or *Pleura*, will not, upon Bleeding, or other convenient means, be sufficiently removed, then may you apprehend a collection of such matter to come within a fortnight. Between the thirtieth and fortieth day the Tumor commonly breaks. The Patient shall find a great heavinesse in his Chest without considerable pain; and in case it is accompanied with pain, then you are to expect a new Flux, which you must divert by Bleeding. The

Patient

Patient hath a difficulty in breathing; in motion, he hears a rumbling, at least he is sensible that the matter changeth place, and the side affected is to the touch, hotter than the other. He casts up, with violent coughing, a purulent matter, having a continual Feaver; he finds an anxiety at his heart, and hath little stomach to his meat.

If we cannot expel these Humors by Expectorating, nor by Diureticks, nor Diaphoreticks, nor by purging Medicines, then are we forc'd to come to Manual Operation.

This cannot be done without danger, and is not to be attempted in case the Patient be weak, and the inward parts already corrupted. However, this Operation hath less danger than the next foregoing, and people often recover upon it; yea, Learned Writers assure us, that by this Operation, and the use of Injection, they have cured many of Ulcers of the Lungs.

Concerning the *Place* of Opening, Authors are not agreed in it; the reason whereof is obvious: For, the *Diaphragma* runs higher in some persons than in others, whence it comes to pass, that the collected Humors in some Patients, lie higher than in others. Secondly, The Chest is raised in some, flat in others, which here much alters the case. Besides, the Lungs do often grow so fast to the *Pleura*, that the sanious matter cannot easily be carried into the Cavity of the Breast: In which case it would be ill done, to chuse the place of Opening lowest, in respect of the *Diaphragma*. And in regard that in this, as in other swellings, the most eminent place is, esteemed the most convenient for opening, it cannot be otherwise but that one Chirurgeon hath made

choice of this place, and another useth that place as the best. Upon which account, *Hippocrates Guido*, *Amatus Lusitanus*, &c. do make the apertion between the third and fourth Rib, counting from beneath upwards: *Fienus*, *Riverius*, and many others, between the fourth and fifth; *Paulus Ægineta*, *Vidus Vidius*, *Fabritius ab Aquapendente*, *Sennertus*, &c. between the fifth and sixth, which place, in my opinion, is the safest; for, if higher, the *Pericardium*, if lower, the *Diaphragma* may be wounded, of which there have been many sad Examples. But in this difference of dissenting Writers, what hath been said, will direct you to pass into the safest Haven.

All things therefore well considered, chuse the place where to make your Apertion, not the fore-part (for, *before*, the *Sternum* or Breast-bone will hinder your operation here; nor in the back-part, for the Ribs are so close to one another, that without hurting some Vessels, you cannot make any Apertion there) but on the side, four or five inches from the *Sternum*: Neither ought the Incision to be so near to the upper Ribs, as to the lower, because the Intercostal Vessels, *viz.* the Vein, Artery and Nerve, lie in the lower part of each Rib, where Nature hath assigned them a place, branching themselves into the middle of the intercostal Muscles; which dissemination nevertheless hinders not, but that the Incision may be made in the middle between the two Ribs.

After you have marked the place with Ink, charge the Patient to breath forth as long as possibly he can, without taking it in, and in the mean time make an oblique, but small Orifice, and put into it a Silver or Leaden Pipe, and take forth four

or

or five ounces of Matter to run out in a day. In case the Matter does not come forth well, place your Patient on the wounded side, and make him to cough; if by reason of its toughness it will not yet come forth, then inject into the cavity some abstersive, exsiccating and healing Medicines; As,

Take Goats whey, eighteen ounces; Honey of Roses, four ounces; the Juice of Celandine and Smallage, of each six drams: Mingle it.

Or,

Take the Roots of Comfrey the greater, an ounce; of Sanicle, half an ounce; the Leaves of Betony, Agrimony, Periwinkle, Burner, of each half a handful; the Cordial Flowers, two pugils; the Seeds of St. Johns-wort, Holy-Thistle, Roman-Nettle, of each half a dram: Boil them in Water and Honey to a pint and half, strain it, and keep it for your use.

Of this Injection, the Patient may also drink a little twice or thrice a day.

It is yet further to be observed, that the collected Matter is often contained in a Membrane of its own, and by its rising, manifests it self from without, and then the *Latins* call it *Vomica Pulmonis*: In which case, you must not stay till the Membrane breaks of it self, for by delay, the Matter flowing up and down is more difficultly to be got out of the Breast, but open it presently, taking no other place, but the most raised part of the swelling.

Now, since an *Empyema* for the most part follows upon a *Pleurisie*, and 'tis daily found, that ignorant Chirurgeons take all kind of pain in the sides, Belly and Breast, although caused from Winds only, for a Pleurisie, thereupon immediately

ately opening a Vein, I thought therefore necessary to write in this place of the *Pleurisie*, as much as is necessary for a Chirurgeon to know, for the preventing such mistakes.

The Pleurisie then is an inflammation of the Pleura, *and commonly of the Lungs themselves, caused from afflux of Blood, accompanied with Pain, Cough, spitting of Blood, shortness of Breath, continual Feaver, strong and quick Pulse.*

The *Cause* is the Blood, sometimes alone (when a true Pleurisie) sometimes mixt with other Humors, then it occasions a *Bastard* one.

The *Signs*, as may be seen in the Description, are so evident, that those who know not how to distinguish it from a *Cholick*, are not worthy of any excuse.

The *Prognostick.*] The sooner the matter is concocted, and the whiter and easilier 'tis ejected, the quicker and safer is the Issue. If the Cough, and difficulty of breathing lessen not by a copious Expectoration, 'tis an ill sign. If the Patient come not to spit the third or fourth day, then will he scarce see the seventh. If upon Bleeding, and other fit means, the pain cease not, the Patient must either die, or the Pleurisie will turn to a Consumption, or an *Empyema*.

The *Cure.*] In this case, *Bleeding* is one of the most necessary and safest means of Cure; and if used in time, the Patient, in the very Operation, and before the Vein be closed, will find relief, and sometimes be altogether freed of the pain. Nor do I know any Disease, in which there may, to the Patient's benefit, be so much Blood taken away at once, as in this.

There are different Opinions concerning what side

ſide the Patient is to bleed on: But thoſe have had little experience of this ſickneſs, who have not found, that Patients (at leaſt in theſe Countreys) are relieved much more and ſooner, when they are Bled in the Arm of the ſame ſide where the Pain is, than when it is done in the oppoſite ſide.

The Pain not ceaſing in four and twenty hours, we are neceſſitated to bleed twice or thrice, moſt commonly in the ſame Arm; but here you muſt well obſerve the Patient's ſtrength.

After letting Blood, ſometimes Purging, Sweating and Expectorating Remedies, are very neceſſary. One only Medicine I cannot conceal from you, becauſe of its excellency. The Induſtrious Phyſitian Dr. *Hadan*, in his *Cure* of the *Pleuriſie*, hath much commended it, and I have, after once Bleeding, alwayes in the beginning uſed it with great ſucceſs, *viz.*

Take the Juyce of Dandelion, an ounce and half; the Water of Plantane, two ounces, of Holy-Thiſtle and Scabious, Syrup of Poppies Erratick, of each an ounce, Crabs-Eyes, a ſcruple and half: Mix it.

Let the Patient every half hour take down a ſpoonful or two of it, until the Flux be ſtopped: After which you are to uſe other Remedies.

CHAP.

CHAP. XVI.

Of removing a Cataract of the Eye.

A *Cataract* (by the Greeks called *Hypochyma*, by the Latines, *Suffusio*, in the *German* and *Belgick* Tongue, *De Staer*) *is a concretion of superfluous Humors, by little and little generating a preternatural Membrane betwixt the* Cornea *and the Crystalline Humor, covering either totally, or in part, the Pupil of the Eye, and so depriving the Patient of his sight, or hindring it.*

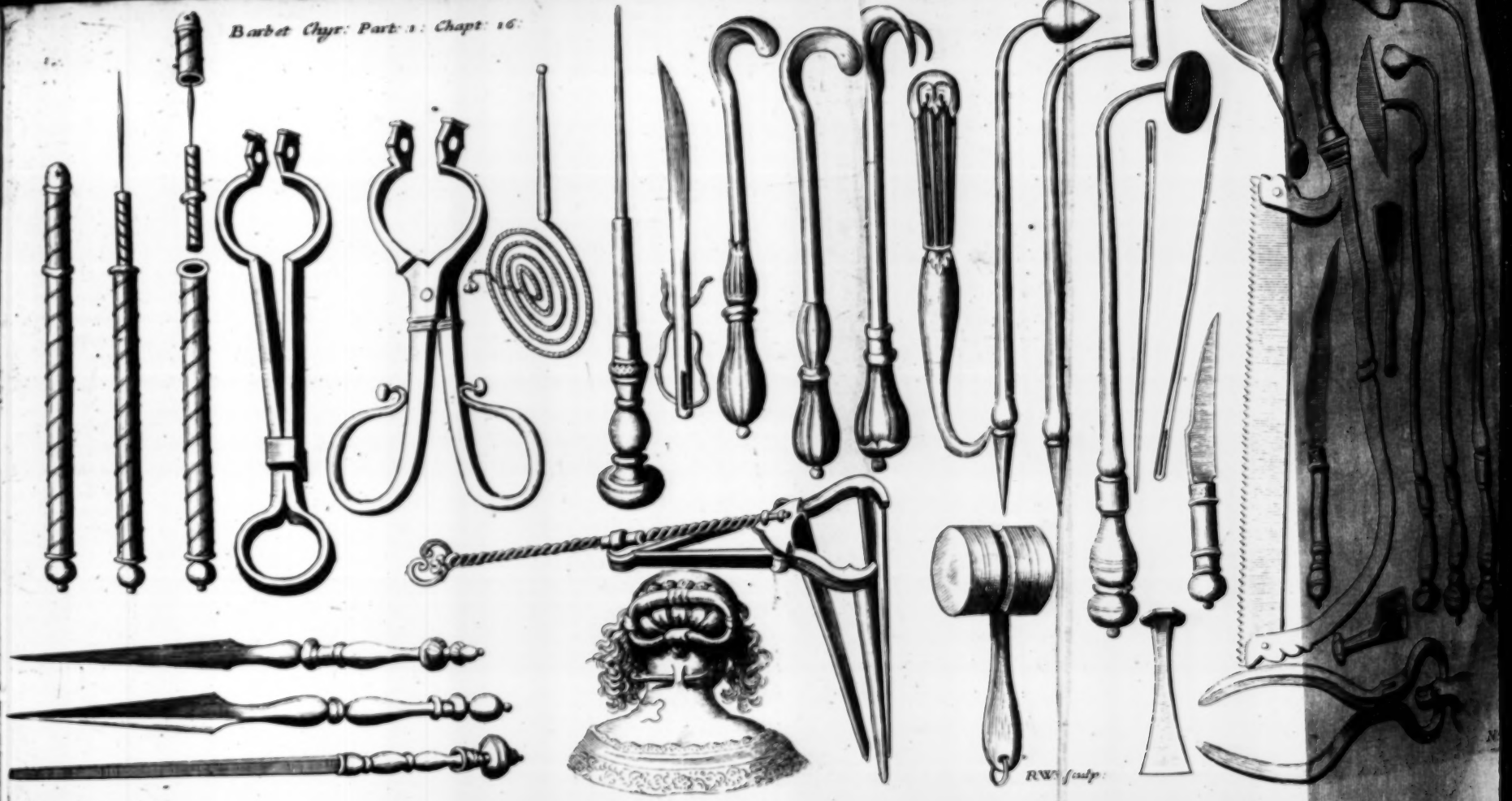
Difference.] It is either *Imperfect*, when the Humor is thin, or the Apple of the Eye not totally covered; or *Perfect*, when it is changed into a Membrane, or the Pupil is quite covered. Sometimes 'tis white, gray, yellow, green, sometimes of a leaden colour, *&c.* according as the green, yellow or black Choler is mingled amongst it.

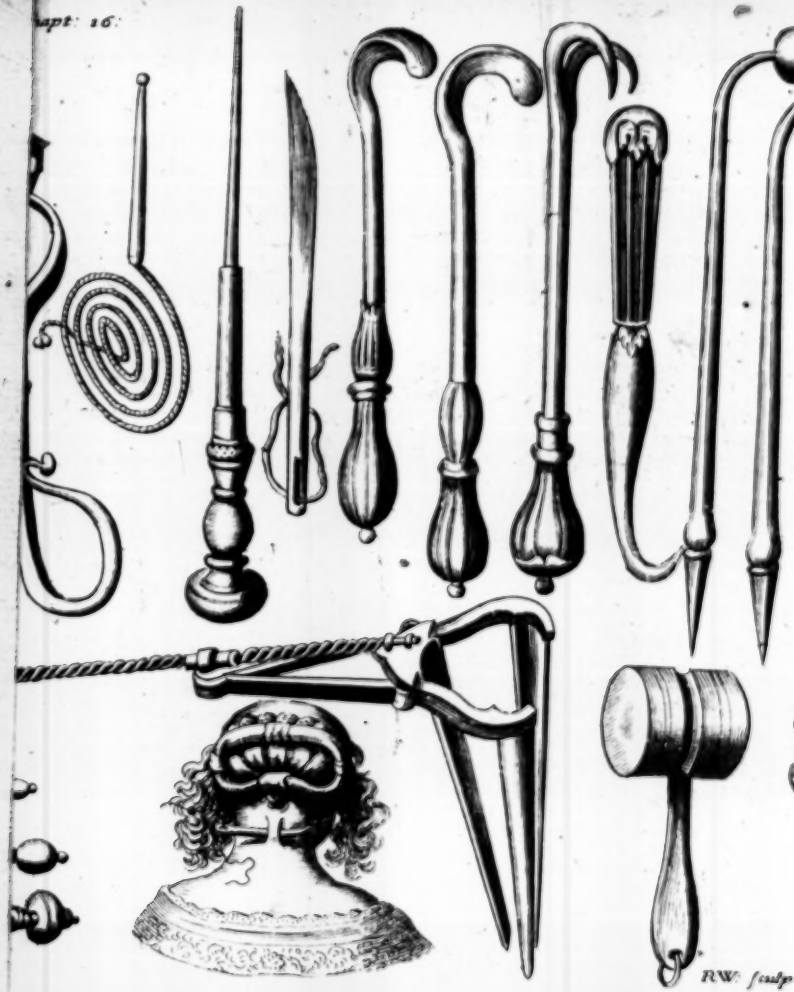
The *Seat* of it is between the *Cornea* and the *Crystalline* humor, being sometimes nearer *to this*, sometimes to *that*.

The *Cause* is a Phlegmatick Humour, either collected there by the weakness of the Eyes, or by the Brain transmitted thither by reason of its abundance.

Signs.] In the beginning, the Patient sees every thing double, and of many colours; the Air seems to him full of Flies, Nets and Clouds, and cannot endure a great light. Thereupon his sight lessens, and all things appear as Spots, and at length there follows blindness. If it be just in

the





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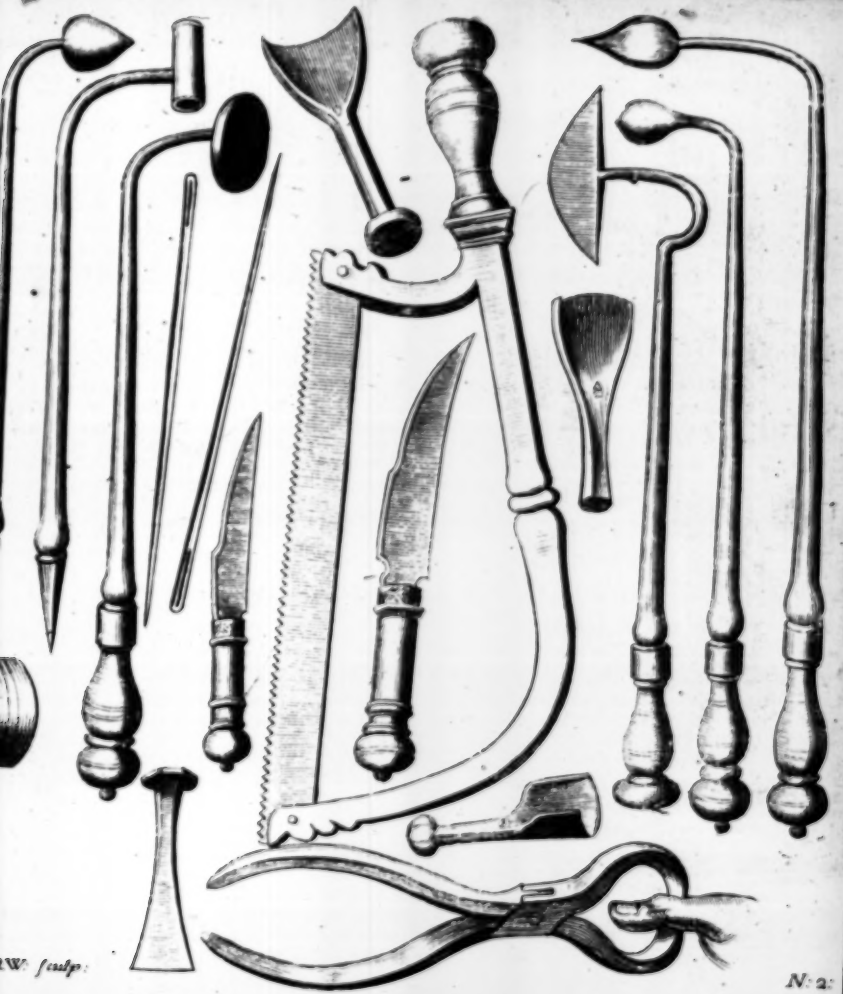
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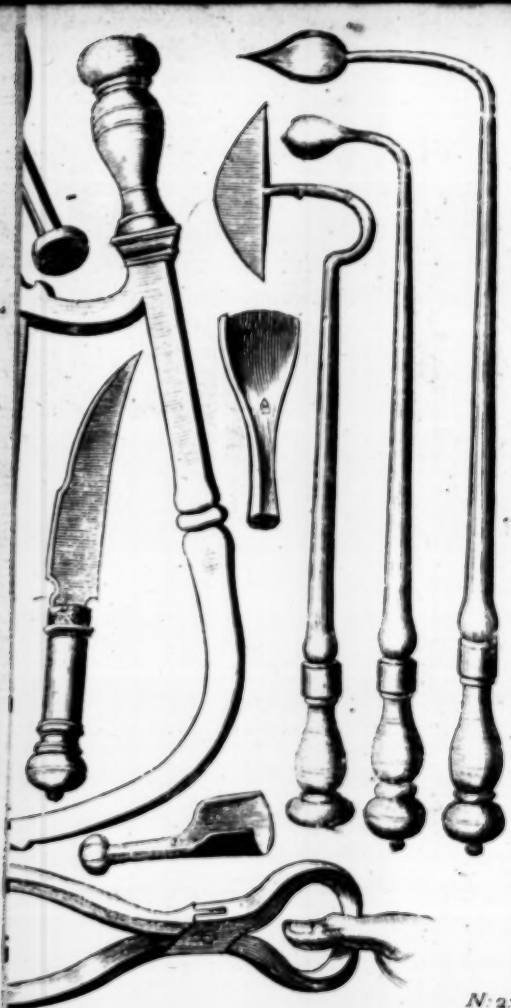

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the Center of the Pupil, yet covers not the whole Pupil; but leaveth round about the sight some place free, and then all the Patient sees, seems perforated. If the Pupil spreads it self, when you rub the eye with your Fingers, then is it yet imperfect; if it remains unmoved, there is no doubt of its being perfect.

The *Prognosticks.*] The imperfect Cataract may easily be cured in the beginning, by convenient External and Internal Medicines, in sound Bodies, and in Patients of a middle Age. The less the Pupil is dilated, the less hope of Cure. The nearer the Suffusion is to the Crystalline Humor, the more dangerous. If the Eye be turned to the Sun, and the Patient then sees no glimmering of Light, there is no benefit to be expected from the Manual Operation. If the Humors of the Eye be commixt by the Needle, though the membrane be removed, then blindness will certainly remain. If in the Operation you happen to touch the Membrane of the Eye, called the *Retina*, the Patient will after that alwayes see the Air, as if full of small Hair and Flies. A Cataract commonly remains so soft unto the third year, that it will not follow the Needle; after the third or fourth year, it is so firm and hard, that it can by no Art be loosned. The Blood spilt by the use of the Needle, causeth no danger, and soon ceaseth of it self. Though the Cataract be not altogether suppressed, but divided into several pieces, the sight doth often perfectly return within six or eight weeks, though before that time the whole Operation should seem to be fruitless; which I speak from manifold experience.

The *Cure.*] The *Imperfect* Cataract requires solely

solely the Aid of the Physitian, who by Medicines, and strengthening the Stomach and Head, have done much; to which purpose the conserve of Marjoram, Rosemary, Betony, *Pulv. Diambræ*, &c. are very good. And outwardly use the following means.

Take Gum Tragacanth dissolved in Eyebright-water, two drams; Burnt Allom, one scruple: Make a Collyrium.

Or,

Take Celandine-water, an ounce and half; White wine, half an ounce; Spirit of Wine, two drams; White Vitriol, six grains; Prepared Tutty, a scruple; Glass of Antimony, five grains; Sugar-Candy, two drams and an half; Camphire, six grains: Mix it, and make a *Collyrium*.

Or,

Take Juyce of Fennel, of Celandine, of each two ounces; Leaves of Rue and Marjoram, of each a pugil; Eye-bright, one handful; of the Gall of an Oxe, four ounces; the Gall of Hens, an ounce; Red Myrrhe, Aloes, of each a dram and half; Sarcocols, half an ounce; Camphire, two scruples: Mingle them, and let them be distilled in *B. M.*

If the Cataract be confirmed, then let the Manual Operation be your only refuge; but beware of attempting the Operation, if the Patient have long before complained, and still complains of Head-ach or pain of his Eyes; if the Body hath not been cleansed in general, nor the Head in particular; and if the Patient be yet molested with a Fever, Sneezing, Coughing or Vomiting.

Having chosen a convenient season of the year, some morning in the decrease of the Moon, and a clear

clear and serene Air, set the Patient in a Chair, and against him let the Operator sit in one somewhat higher than his, bind up his sound Eye, and make him clap his hand about your waste, without stirring them at all as long as you are busie in the Operation. Let some body hold his Head fast behind, and hold you asunder his Eye-lids, charging him to turn the Eye towards his Nose, which when he doth, quickly thrust your Needle into the *Cornea*, half a straws breath from the *Iris*, and bring it unto the hollow of the Eye; when the Needle hath touched the Cataract, endeavour therewith to press it gently, and so long from above downwards until it remains there; if it be stubborn, in springing up again and again, divide it into several parts, and keep these particles, or the whole Cataract a little while under, that it may not return again before the Pupil of the eye, then draw out the Needle, and bind up as well the sound as the unsound eye, with Linnen cloaths moistened in some Rose-water, the White of an Egg, and a little Allom mixed together. Beware in the Operation, of hurting the Crystalline Humor, and the sound Tunicles.

CHAP. XVII.

Of Leeches.

Leeches more advantageous than Scarification, and safer than Bleeding, may with benefit be applied, as well in strong as in weak Bodies, they only draw Blood from the Cutaneous Vessels, by which they cure light Diseases, if only applyed

ed to the Skin; but if applied to some greater Vessel, they draw also Blood from the Internal Parts, and so remove internal and more desperate Diseases.

There is great care required in the choice of Leeches, for those with great Heads, and that are green and shining, with hair or blew stripes on their Backs, are not without Poyson; as also those that live in standing or putrid waters: but those are to be chosen that are slender and long, with little heads, and red Bellies, and such as are nourished in clear running Water: They are never to be applied to the Part new taken, but after they have been taken a day or more in fair Water, and fed with a little Blood, that they may be cleansed of all their impurities; the place where they are to be applied, is to be rubb'd till it be red; and if they fasten not, 'tis to be moistened with Cream, or with Blood fresh taken from a Pigeon, or the part it self to be prickt with a Needle till it bleed; if they draw sluggishly, cut their tails off with a pair of Sciffars. After they have suckt a sufficient quantity of Blood, and they fall not off themselves, put upon their Heads a little Ashes or Salt, and they will suddenly desist from their work: they are not to be pull'd off by force, lest they leave their heads behind them, from whence incurable wounds, and oftentimes Death succeeds. 'Tis to be noted, that they rather draw Arterial Blood than Venal, therefore they ought to suck the less.

CHAP.

CHAP. XVIII.

Of the Cutting in the Hard Parts.

THe Section which is used in the Hard and Bony Parts, is of four kinds, viz. Scraping, Filing, Sawing and Perforating, that is, Trepaning.

Scraping is used in a Pissure and foul Bone, in the *Teeth* also, when they are crusted over with a Tartarous black substance; the Bones are to be scraped till you come to the sound part, which is white and solid, and a little blood cast forth; and to the Bone thus scraped, some drying Powder is to be applied; the *Periranium* and *Periostium* must first be separated from the Bone, before you go about this Operation; for by no means are they to be touched with the Instrument, neither likewise the lips of the Wound.

Filing is used in the Teeth; for when they unnaturally stand forth, and either in Eating or Speaking, are any hinderance to a man, then that which thus sticks forth, is with a File to be taken off, which must be done carefully, without any injury to the neighbouring parts, and by degrees, neither with too great a violence lest it loosen the Tooth.

The use of the *Saw* is in a mortified part, when the Bone is to be cut asunder; concerning which Operation I shall suddenly speak.

Perforating or *Trepaning* is of great use when the Bones are extreamly foul, but 'tis of greatest use in those effects, which the Fissure or a Fra-

cture of the Skull, or a Contusion may produce: Seeing therefore this Operation is so full of danger, 'tis diligently to be enquired in what Cases 'tis necessary, and in what 'tis not; for a Fissure as a Fissure, as likewise a Fracture as a Fracture, requires not the Trepan as an operation without which they cannot be cured: In like manner a slight Contusion doth not alwayes occasion such dangerous symptomes, that the Trepan may not cause worse; for oftentimes a small quantity of extravasated Blood, in Robust People, is often discussed by the work of Nature, her self, except the innate heat be weakened by external Cold, which in the use of the Trepan, let what care possibly be had, cannot be totally avoided; besides this, the Blood is more often extravasated between the two Membranes, the *Dura Mater* and the *Pia Mater*, there the Trepan can seem to produce but little good; but in this case I would not much matter to divide the *Dura Mater*; Experience having taught us, that by the help of Art and Nature, hath an Incision, nay, Gangreene of the Part it self been cured: *Therefore for the most part but in three cases is the Trepan required.*

1. *Where the loose pieces of the Bones prick and wound the Meninges*, which is to be known by the continual pricking pain presently from the very hurting perceived, granted the Patient be sensible; but if not, he is alwayes feeling the Part affected with his hands: There happens likewise Contusions of the Eyes, and Convulsions of the Limbs: Besides, the quality of the Instrument which the Fracture hath made, will more plainly demonstrate it.

2. *Where the first Table is only depressed, but the second*

second broke; there being no way to give passage to the pieces, how well soever by Art or Nature separated. The Signs of this, are, a Dimness, a giddiness, a Fever, Vomiting, and sometimes an Apoplexy; a feeble small Pulse, and especially about the Temples, the depressed Bone in some manner obstructing the Circulation of the Blood in the Brain.

3. *Extravasation of Blood, upon which follows Putrefaction*, and if not remedied, *Death it self*: The Signs which declare this Putrefaction, is a continued Fever, a great Heat in the Head, unquiet Sleep, Watchings, Inflammation of the Eyes, and light Delirium; and moreover, the Temperaments of Bodies are diligently to be considered; for in Phlethorick People, to those above-named Symptoms are joyned, a Laughing, Talking idly, and Redness of the whole Face. In the Cholerick appears a yellowness of the Face and Eyes, great Heat, and Madness. In the Phlegmatick, all the Symptoms are less; but sometimes it is accompanied with a Palsie, sometimes with an Apoplexy. In Melancholy men, a Dread, impertinent Talk, and Laughing is usual.

Where the Trepan is necessary, apply it as soon as possible, lest the putrefying Blood causeth greater evils, that is, on the third, fourth, or fifth day.

The manner of Trepaning is thus, The Hair being shaved, Let the Skin be divided with a double Incision, in form of a Cross to the *Peritranium*, avoiding with the greatest diligence alwayes the temporal Muscles, and the Sutures of the Head; this done, bind up the Wound, except the Hemorage be small (which very often is so violent,

that it hinders the Chirurgeon for some dayes from any further Operation) if it will then give leave, to divide likewise the *Pericranium* from the Skull: After some few hours (the Skull already bar'd of its *Pericranium*) the Patient well plac'd, his Head must by some person be firmly held, his Ears being stopt with Cotton, then set on the Trepan with a Pin, which must neither be upon the Fracture, nor upon the Sutures (although there are some that venture to apply it upon the very Sutures themselves) the Surgeon holding in his left hand the Instrument, and with his right, let him gently turn about the Trepan until it hath taken good hold round, then take out the Pin, and set the Trepan on again without it, moving it still about, and if you see any small Filings of the Skull, take off the Trepan and wipe them away; and the Trepan it self is sometimes to be dipt in Oyl, that it may the easier be turned about; and sometimes in Water, that it grows not hot. If any Blood appears, you may be certain that the Trepan hath past the first *Table*, then are you to have a greater care, lest the Trepan should unawares slip in, and wound the Meninges, from whence oftentimes follows sudden Death: For the *Dura Mater* invests the inside of the Skull, in the same manner as the *Pericranium* doth the outside, but yet not so strongly joyned to it, but that by a fall or blow, it may be easily separated from the Skull.

When the piece of Bone, separated by the Trepan, begins to be loose, you must with a little Instrument put in, between the Skull and the Trepan'd part, and free it from the whole, and so gently take it out with a pair of Forceps.

If

If there remain any inequality from Trepaning, in the inſide of the inward Table, that may cauſe injury to the Meninx, 'tis to be taken away with an Inſtrument called *Lenticula*.

And that there may be a diſcharge given to the coagulated Blood and Matter, the *Dura Mater* is to be compreſſed with an Inſtrument called a *Decuſſorium*: To effect the ſame, 'tis commended that the Patient (if ſenſible) his Mouth and Noſe being ſhut, hold his Breath, ſo that the Brain being raiſed upward, the concreted and corrupted Matter may be thrown forth; but very ſeldom is the Matter diſcharged by this only remedy; for the Chirurgeon hath need enough of the *Decuſſorium*, *Spunges*, *Lint*, and the like Inſtruments; the deſcription and delineation of the which, you may find in *Joh. Andr. à Cruce*, *Paræus*, and others. Read the 4th Chapter of this Chirurgery, where Fractures of the Skull is deſcribed.

CHAP. XIX.

Of Uſtion, or Burning.

ENough hath been ſaid of Cutting, now a little of Burning; when neither Medicine nor Knife bring relief, we muſt then come to the Fire, as well in the ſoft as hard parts: In all Burning, great care is to be taken that the neighbouring parts be not hurt; therefore it is very neceſſary to defend them againſt it with Lint: That Burning is certaineſt, which is made by an actual Cautery, *viz.* a red-hot Iron, than that which is performed

a Potential, that is, by Corrosive Medicines; yet for the most part, the Patient's fearfulness makes choice of this; whichsoever you use, beware of applying Oyl alone, or Butter, to remove the Escar, for it hath been observed not once only to have occasioned a Gangrene. *Diapalma* Plaister, or Lint wet in Wine, will be sufficient.

CHAP. XX.

Of Issues.

Issues are little Ulcers made by Art in a sound part of the Body by a red-hot Iron, Launcet, Scissars, or corrosive Medicine, to evacuate superfluous humors, and so either to cure or prevent Diseases.

These troublesome Guests are rarely courted, and are chiefly prescribed when we see gentler Medicines to profit nothing, and after the Body hath been well purged.

In what part soever they are made, it is alwayes to be observed they never ought to be inserted in the beginning, middle or end of a Muscle, but alwayes in the space between two Muscles, which requireth the knowledge of Anatomy, except according to the example of Quacks, whose custom hath taught them to find out a place even blindfold. In the Head, the place is the middle of the *Coronal Suture*, made oftner by other Nations than is a practice amongst us. In the *Neck* they are not so often made, how necessary so ever they may appear. The *Italians* use to make them between the Shoulders with success. In other places they are either very troublesome or inconvenient. The

The *Manner* of making Iſſues is divers: If you make uſe of the *Potential Cautery*, apply a Plaiſter to the part, having a hole in the middle about the bigneſs of a Pea, in which lay a little *Coſtick*, and over that a Bolſter and another Plaiſter; and after three or four hours, take off the Plaiſters, and laying on the Eſcar a Plaiſter of *Diapalma*; dreſs it twice a day, that it may the ſooner ſeparate.

Thoſe which deſire it rather by *Inciſion*, the Skin being taken up either by the Forceps, or by the Hand, divide it with a pair of Sciſſars or Launcet. If Burning be preferred before the other wayes, burn the Skin, but not the ſubjacent Muſcles; for indeed the Skin it ſelf is not to be wholly penetrated, oftentimes the touching only the Superficies of it is enough.

When the Scar falls off, take little hard Doſſels made of Lint, ſpread upon them ſome Deterſive Medicine, and preſs them into the Ulcer, until they have made a ſufficient impreſſion; then afterward keep in this Cavity a Ball of Wax, Wood, or Silver, or a Pea, which is to be often taken out, and another put in, and ſo is to be continued till the Diſeaſe be cured, or weakneſs hinder.

CHAP. XXI.

Of the Seton.

ALthough the application of a *Seton* be with greater trouble than an *Iſſue*, yet it brings much greater advantage to the ſick Patient, for what *two Iſſues* cannot remove, oftentimes is performed by *one Seton*

It may be made in the Arms and Legs, and many other parts of the Body, but in the *Nape of the Neck*, between the first and second *Vertebra*, or second and third, yea, between the third and fourth, is only in use amongst us, but I could wish it was more frequent.

There are *three Instruments* necessary to perform this Operation; *A pair of Forceps, a Needle*, and *String*. The *Forceps* which are to hold up the Skin, must be perforated of each side; the *Needle* must be three-pointed, and answer to the holes of the *Forceps*, which it must pass through. The *String* is to be of *Silk*, not exceeding the thickness of the *Needle*: Let the Chirurgeon take up the Skin with the *Forceps* and gripe it hard, which being somewhat stupified, the Patient will feel the less pain; then let him pass the Needle red-hot through both the holes of the Forceps, Skin and all; after which, with another Needle let him bring through the thread: The first day, to ease pain, apply to the part Lint dipt in Whites of Eggs and Rose-water mixt together: afterward let Digestion be procured by the use of convenient Medicines; when digested, let the String be drawn every day, sometimes to this side, sometimes to that, so that the mattery part may hang out of the Wound. Thus the Operation being perfected, the Ulcer may be kept open as long as occasion requires, or the Patient pleaseth.

After this manner many Authors, both Ancient and Modern, order the making the *Seton*; but this Operation is much easier performed, if in the right place the Chirurgeon take up the Skin with one hand, and his Servant with another, and so pass it through with a sharp-pointed Needle, but

not

not made hot; the String being of Thread, not Silk, of convenient thickneſs, and rubb'd with Wax.

CHAP. XXII.

Of the drawing forth of Bullets.

NOw we are come to the Third Part of Chirurgery call'd *Exeréſis*, which removes things ſuperfluous: They are of a twofold Nature, either they are generated in the Body it ſelf, or elſe brought thither by accident.

We treat of the laſt firſt, to wit, *The extraction of Bullets out of the Body*; which is not difficult, if it appears whether it be nearer to the part where it made its entrance, or to the oppoſite to which it hath penetrated.

If it be obſerved to be near the Orifice, let it be drawn forth with a convenient Inſtrument; if nearer to the oppoſite part, let inciſion be made upon it, and there taken forth: but if the Bullet cannot be found out by a Probe, the Member is to be ſo placed, that the Bullet by its own weight may come forth; which if it happens not to do, the Wound is to be cured, and let the Chirurgeon expect until the Bullet ſhows it ſelf near the Skin, which very often requires a long time.

CHAP.

CHAP. XXIII.

Of the Extraction of a Dead Child and the Secundine.

That the Birth may be Natural, it is necessary, That the Infant the whole time of its continuance in its Mothers womb, lies in such a posture that the Arms and Feet being contracted, the Head downwards, having the Face towards the Mothers Back; the whole *Fœtus* lying transverse in the bottom of the Womb, until requiring greater room, which happens in the seventh, sometimes in the eighth or tenth, for the most part in the ninth Month, the head of the Infant descends towards the mouth of the womb, the Limbs which were before contracted, being extended, it breaks through the Membranes wherein it was included, by which the water that is contained in them, flows forth, which serve to make the parts slippery, and so is convenient to facilitate the Birth.

If any one of these be wanting, then one of these four things necessarily happens; either, 1. Both the Mother and the Child, although they may live, yet there follows no exclusion. 2. Or the Mother lives, and the Child dies. 3. Or the Child lives, and the Mother dies. 4. Or both the Mother and Infant dies.

Causes hindering Labour] *are*, 1. *When the Pains of the Birth are none, or not sufficient.* 2. *The great weakness of the Mother.* 3. *The greatness and strength of the Child; and on the contrary, the slender*

ſlender and tender conſtitution of the Mother, or when the paſſages are ſo ſtraight that the Infant cannot come through them. 4. *The number of Children,* eſpecially if they endeavour to come forth at the ſame time. 5. *The tranſverſe, or any other preternatural poſture of the Child.* 6. *If the Child in the Birth it ſelf be fallen down with its Head upon the fore-part of the Oſſa Pubis,* which caſe Authors of the greateſt account, whom I know, and our Midwives have not at all obſerved, ſo by how much the greater the Pains of the Birth are, there is ſo much the leſs hope of coming out, except the Head be firſt a little raiſed, and the *Fœtus* be turned towards the back, and ſo into its true paſſage by the hand of the Midwife. 7. *The Weakneſs of the Child it ſelf,* which makes it not able to add any thing towards its excluſion. 8. *The Death of the Child.* 9. *The not ſufficient receſſes of the Hip-bones towards the Back,* for the *Oſſa Pubis,* except in the very hardeſt Labours, and then but very ſeldom do divide.

The Signs of a dead Child are as followeth.

The Mother feels no more the Motion of the Infant, although ſtrengthening Cordials be exhibited; but in this caſe when the Infant is as it were tired, ſtirs it ſelf a little, you have a much more certain Sign. Take a piece of the Crum of Bread, and dip it in Canary wine, and apply it to the Navel of the Mother, then open a Vein in the Foot, and if by the uſe of theſe things, there follows not a motion of the Infant, it is a very ill ſign.

When the Mother turns her ſelf from one ſide to the other, and perceives the Child to fall on the ſide

side laid upon, like a stone or a great weight, the Face, and chiefly the Lips grow pale, the extream parts cold, as likewise the lower Belly, the Paps begin to grow lank, the Breath becomes fetid, great pains of the Head, Faintings and Fevers, Water and stinking Gleet flows out of the Womb; if the After-Birth be excluded before the Child, 'tis impossible the Child can live long, but the surest sign of all is, if the Membrane of the Head of the Child be not observed to be any longer tense; for as long as it is tense, the Infant lives.

Prognostick.] Except the dead Child be suddenly drawn forth, it puts the Mother in great hazard of Life. The Feaver not being great, other Symptomes, though great and fearful, yet take not away the hope of recovery.

The *Cure.*] If Medicines, with the aid of Mother and Midwife, profit little, then must the business be committed wholly to the Chirurgeon, except the Woman be too weak, or the Child having been dead for many dayes, which he ought to consider, lest he lose both his Credit and Labour.

But first, it is diligently to be enquired into which of the Causes it is that hinders the Birth: If the Child be greater and the passage straighter than usually, they ought to be dilated; this some Midwives do with convenient Instruments, and so draw forth the Child alive, but where they are wanting, the Midwife must clutch her hand very close, and thrust through the Internal Orifice into the Womb it self; then putting her Fingers one after another through the Orifice into the inner part of the Womb, to discover the situation of the Child, and if she finds the Arms or Feet to come inconveniently, let her gently raise it up, bringing the

the Head downwards, which if she finds to be next the Orifice, if possible, let her put in her other hand through the *Pudenda* into the Womb, and so with both her hands laying hold of it, draw it forth.

But if this Operation cannot be performed, then with a hook firmly fixt (lest it injure the inside of the Womb) in the Mouth, Eye or Ear of the Child, and so gently draw it forth; and if the *Fœtus* will not follow, then with another Hook, blunt on the outside, and sharp within, let him cut in pieces the Belly, Breast, or Head of the Child, and if the Arms or Legs cannot be brought forth, let him cut them off, so at length, being deprived of its Limbs, the remainder may be drawn forth.

But if by this way the Woman can neither be delivered, with a sharp and strong Knife, the Limbs one after another are to be cut out, and so the Child be drawn forth by piece-meal: It is necessary that this be performed by none but a good Anatomist.

The *Secundine* will presently follow the Birth, for it's of no use, that being excluded; for the Mouth of the Womb, suddenly after delivery, is so closely shut, that not without great pain it can admit the Hand of the Midwife, therefore the Midwife, as soon as may be, is to draw it forth, and with her fingers, if it sticks very close to the Womb, gently to separate it, but not pluck it away forcibly, which is mortal, and although many Writers and Midwives of inferiour Rank, little regard the retention of the After-Birth for some time after delivery, yet I think I have good reason to pronounce it, one of the greatest Symptomes of Womens Labour.

CHAP.

CHAP. XXIV.

Of the extirpating of a Mortified Part.

WHen *a Dead Part* altogether becomes useless, that it may not do any injury to the neighbouring Parts, it is to be *taken away: But in what place?* Most convenient is the Joynt; but the cure by such extirpation is rendered more difficult, and the use of the Part altogether lost; therefore the Extirpation is better to be made two, or three, or more fingers breadth below the Joynt, except the Mortification hath extended it self to the uppermost parts of the Arms or Thighs; for then we are forced to take the Joynt it self: *But again in what Part? Whether in the whole or mortified?* The Amputation is more safe in the sound Part, although accompanied with greater Pain.

The common way both of the Ancient and Modern.

The Patient having received convenient nourishment, is to be placed upon a Form, then let the Skin and subjacent Muscles be drawn up as much as possible, by a strong man, and there kept, and an inch above the place where the Member is designed to be taken off, with a narrow Ligature is the Part to be very hard bound; this done, with a dismembring Knife, the Skin with the Flesh is speedily to be cut all round to the Part, and the *Periostium*, by scraping, is to be separated from the Bone, and

if

if it be where there is a double Bone, as in the Leg, and below the Elbow, the Flesh and Ligaments between them is to be divided; which being performed, let the Bone be separated with a very sharp Saw. If the Flux of Blood be not great, to apply only those Medicines that stop Blood, will be sufficient; but if great, an actual Caurery is to be used, which is only to be applied upon the great Vessels; then let the Ligature be taken off, and the Part be fully bound up.

If either the Patient or Chirurgeon be averse to the use of a Caurery, then as soon as the Member is taken off, let the Skin together with the Flesh, in four distinct places opposite one to the other, be taken up with a Needle and waxed Thread, and the Ligature being loosned above, or drawn down, that, if possible, they may meet. So by this way is the *Hemarrage* staid, the Bone preserved from all danger, and the Wound sooner cured. But this way is painful and troublesome, therefore ought it the seldomer to be used.

Aquapendens *his Way.*

When the principal design of Art in this Operation, is to put a stop to Putrefaction, to cause as little pain as may be, and to stay the flux of Blood, all which the above-quoted Author thinks may be done, if the Member be amputated in the dead Part, but near to the sound, then the Bone being divided, with burning hot Irons let the remainder of the dead Part be cauterized till the Patient perceive the heat of the Fire: So he writes, that by this course a Flux of Blood is not to be feared, less pain is caused, and within the space of two

or three dayes, will appear a separation of the Mortified Part from the Sound; but in my opinion, we ought to consider well of the Cause. For in a *Spacelus*, sprung from an Internal Cause, in a Body otherwise sound, this way is the best; but in a *Spacelus* caused from a defect of innate Heat, the former is more profitable.

CHAP. XXV.

Of the Fleshy Rupture.

SArcocele, *which is a Fleshy Rupture, is a Tumor besides Nature, produced from impure Blood, flowing in too great quantity into the Testicles, and there degenerated into Flesh.*

In this definition, received by the best Physitians and Chirurgeons, I note two things: 1. The *cause* of this Tumor, *not to be impure Blood*, seeing the best, may produce it; *not simply abounding in quantity*, because it happens also in wasted Bodies, though 'tis not so soon generated, nor arrives to such a greatness in these, as in those Bodies; but *the true cause is the Erosion, Rupture or Dilatation of the Membranes which close the Mouths of the Capillary Vessels, that the nutritious Blood may not flow too suddenly into the Part*; from whence, more Blood flows into the Part than what is required for its nourishment, and Nature changeth that Blood which otherwise would putrifie into a fleshy substance. 2. *This flesh sometimes grows to the second of the common Tunicles of the* Scrotum, *and not to the Testicles*, in which case it may be taken away

way, without either hurting or cutting of them out.

Signs are, the hardness and slow increase of the Tumor, which is rather more troublesome than painful, except accompanied with sharp Humors; no appearance of any Tumor in the Groin.

Prognostick.] A *Sarocele* is hardly cured by the help of Medicines, and seldom by Manual Operation, without taking off the Testicle, if it extends it self into the Groins, for the most part incurable.

Cure.] In the beginning, when the Membranes of the Vessels being Eroded, Broke or Dilated, do give leave for too much Blood to issue forth, *Bleeding, and the use of Repelling and Restringent Medicines prosit much*; but when it hath begun to augment, then we may use these following means; Let there be made a little Orifice in the *Scrotum*, rather in its Superior then Inferior part, through which, by the help of Plegets let Suppurating Medicines be applied, so that if possible, to waste the flesh, every dressing diligently wiping away the Matter, but not all, that the remaining flesh may be the better consumed.

If these things succeed not, draw forth the Testicle, and by Incision take off as much flesh as may be done without injury to it; then restore it again into its place, and the remainder of the flesh endeavour to consume by Suppuration.

But if there be no hope of curing this Rupture by the recited means, draw forth the Hernious Testicle as far as you may, then pass once or twice a Silken Thred above the Tumor by the Process of the *Peritonæum*, then pass both ends of the Silk through the Orifice it self, so that which

but on the right side, may be on the left, and that of the left, on the right; and having ordered that the process of the *Peritonæum* may be tied with a knot, then cut off the Testicle, letting both the ends of the Silk hang out of the *Scrotum*, and so cure it as another Wound.

I cannot here but friendly advise, 1. *That the Surgeon ought to consider well of the Cause, before he comes to the Operation it self*; for sometimes the *Parastates* are so swelled, especially the Testicle being Scirrhous, that they may easily deceive a nesty curious Examiner. 2. The Ligature ought to be made as near to the Tumor as possible, for by how much the higher part of the Process of the *Peritonæum* be perforated, it is observed to be so much the thicker, which thing will retard the Suppuration and the falling of the Thread; in the mean time *Convulsions* coming on, denounce death. 3. The Spermatick Vessels detained in the *Scrotum*, oftentimes by Natures variety, exceed the Testicles themselves in greatness, which causes no other inconvenience but only fear, which I have observed to be true, in more than one.

CHAP. XXVI.

The Extraction of the Stone out of the Bladder.

THE Stone is a hard Body concreted from Slimy, Salt or Earthy Matter, by a peculiar Lapidifying quality, causing Pain, Obstruction, and other Symptoms in the place where it is detained.

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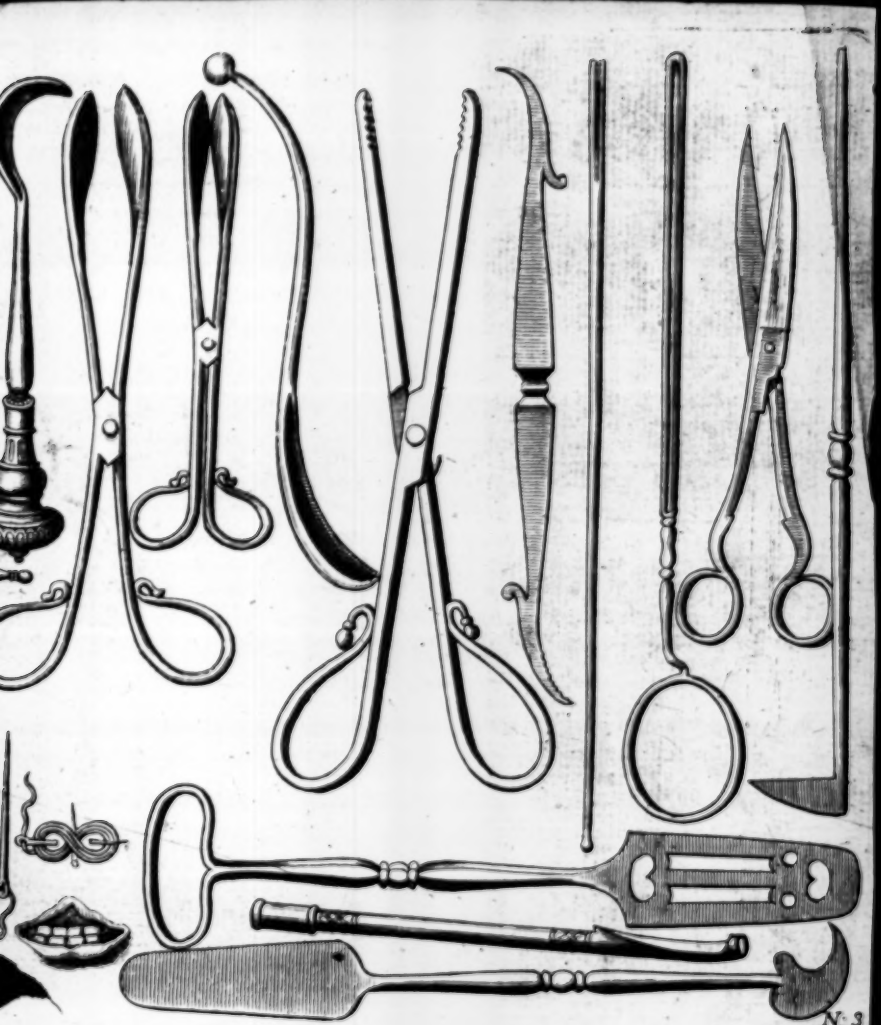
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The Cause is a Pituitous, Salt or Earthy Matter, which neither by heat nor cold, by *a peculiar lapidifying quality is changed into a Stone.*

Signs. The Urine is white, slimy, crude and troubled, suddenly adhering to the Urinal; sometimes it is bloody, sometimes sandy or gravelly; sometimes full of little threads, and not seldom suppress, a great thirst, a frequent making of Urine, but with pain and by drops, the Patients place themselves with their Thighs across, always holding their Privy Parts in their hands, pressing the bottom of their belly; the Privy Part is always erected, very painful to go or walk, in the Region of the Belly a weight perceived, the Patient seldom making water without going to Stool, the Intestine commonly falls out, especially in young people.

Although all these Signs seem plain, yet they may sometimes deceive a Physitian; it was formerly the custom with a *Catheter* passed through the *Ureter* into the Bladder, then thrusting in one or two fingers into the *Anus*, not only to search for the Stone, but also understand its greatness. But this searching was so very painful, that it was difficult, through fear of pain to have it permitted a second time, and this thing gave occasion to have ready at the second time of searching, all Instruments necessary for cutting out the Stone; but the Omnipotent and great Prince of Physitians hath now granted to those miserable Patients, those Chirurgeons, who not only without *Catheter*, but also without pain both in old people and children, which can most certainly find out the Stone; and for this reason they excel the so much esteemed *French men*. I wish other places also may enjoy the same Artists.

Prognostick.] A crumbling Stone seldom, a hard Stone can never be wasted by Medicines, whatsoever boasting persons may say; sometimes it is so soft, that by the very *Catheter* it self it may be broke to pieces in the neck of the Bladder, and be brought forth, sometimes through it's smalness it comes forth whole, sometimes it sticks in the *Urethra*, out of which, without danger and great pain it cannot be removed; if it sticks in the *Tunicles* of the Bladder, or grows to the Superficies of the Interior Coat, it cannot be taken away by Section, without the death of the Patient: By how much the greater the Stone is, the Operation is the more dangerous and painful. Stones are often drawn forth out of Womens Bladders about the bigness of an Olive, or a Walnut, without Incision: but this way by Dilatation, of Extracting the Stone, is so dangerous, that it ought not to be performed but by experienced Chirurgeons.

Cure.] Stones generated in the Kidneys, Bladder, or other parts of the Body (for, they may in any) in general, require the assistance of the Physitian; but we in this place treat only of the manner of drawing them forth out of the Bladder by Incision. There are several wayes by various Authors proposed; but that which follows, is the most common, and most sure.

Let the Chirurgeon place his Patient on a soft Pillow in a strong mans Lap, after he has three or four times jumpt from a high place, then let him tie both his hands to the soles of his Feet, and let two standers-by hold each Knee, extending them as far as may be one from the other; then let him take the first Finger of his left Hand, or if necessity requires, the two first, annointed with Oyl of Lillies,

Lillies, Roſes, or freſh Almonds, and thruſt them up the Fundament, with his right hand gently compreſſing above the *Os Pubis*, ſo that the Stone may ſlip down vnder the *Os Pubis*, into the *Perinæum*, which when brought thither by the foreſaid Fingers, let him make Inciſion with a ſharp Knife in the left ſide between the Teſticles and the *Anus*, near to the Suture of the *Perinæum*, cutting to the ver Stone it ſelf, and if it comes not out of the Wound it ſelf, nor by the thruſting forth of the Fingers which are in the *Inteſtinum rectum*, let him draw it forth with a pair of Forceps, or which is better, with the *Lapidillum* or Spoon. The Stone being taken out, and all the Ligatures looſed, let the Wound be bound up according to Art, applying Medicines, ſtopping Blood, *viz.* of Meal and Bole, *&c.* with the greateſt care to conſolidate it as ſoon as poſſible, leſt the Patient labour with a dropping of his Urine through the wounded part: And this is the manner of drawing drawing forth the Stone, which Chirurgeons uſe to call *Apparatus Minor*, whihh chiefly is uſed in Children, although there are thoſe which proceed thus in people of full growth: But in our Countrey always this Inciſion is made by them whoſe Fingers are fitted for this Operation.

But in People of full Age it is ſometimes very difficult to reach the Stone by the Fingers put up into the Fundament, and after the ſame manner to bring it down into the *Perinæum*, if not altogether impoſſible, as many think it; therefore there is another way found out, which they call *Apparatus Major*; the Patient is put on a Table, and bound, and held as above, the Chirurgeon through the *Uretra* paſſeth a Director into the

Bladder to the Stone, then Incision being made as above, in the hollow of the Director, puts in the Conductor, taking the Director out of the *Ure-tra*, he passeth into the Wound the Forceps, the *Lapidillum*, or other Instrument convenient for drawing out the Stone, by which he may both lay hold of it, and draw it forth, not making use of his Fingers in the *Anus*, except great necessity compel him to it. Where the Stone is bigger than the Orifice, and cannot come forth, the Wound is to be enlarged, or the Stone to be broken into pieces by the Forceps, and so drawn forth in parts: This done, the Binding and Consolidating the Wound, ought to be the same as in Children, giving it a stitch if it be too great, putting in a Silver Pipe for two or three dayes, that may give passage to the Concreted Blood, Slime and Sandy Urine.

The manner is the same in Women, but only the Fingers are not put into the *Anus*, but into the Privy Parts, and the *Catheter* must not be crooked, but straight, and much shorter than the other.

There is likewise another manner of drawing forth the Stone; the Chirurgeon thrusting his Finger into the *Anus*, presseth the Stone upwards to the Belly, then through the Wound made in the right Muscle above the *Os pubis*, according to the *ductus* of its Fibres, by the assistance of the *Lapidillum* or Forceps draw forth the Stone; by this way is never observed any coming forth of the Urine, and the place supposed convenient to draw forth the Stone: But this Operation in it self is dangerous and troublesome, and if the Lips of the Wound made in the Bladder unite not to the Muscles of the *Abdomen*, there follows an Ulcer of the Bladder, more painful, but less cureable than

than the Stone it self; which inconveniences have caused it not to be reckoned among other Operations by true Practisers.

CHAP. XXVII.

Of the Hare-Lip.

THe fourth and last Part of Chirurgery call'd *Anaplerosis, which restores what is deficient*, is chiefly used when any part of the Nose, Lip, or Ear is wanting, whether it be from the Birth, or from an External Cause.

As to the *Lip*, in a little defect, let it be first separated from the Gums, then let the edges be scarified and joyned together with a Needle, laying over it an agglutinating Plaister, and so in a short time the Cure will be performed.

In a greater Defect, let the Lip be separated from the Gums, then put a Linnen Cloth between, and let the Extremities be brought together by Bandage, after some few dayes, convenient Scarification being made, by the help of a Stitch, and Plaisters, let the ends be united.

The *Nose* and *Ears* being deprived of any part, after what manner they are cured, *Taliacotius* in a particular Treatise hath largely set down; to the which I refer the Reader.

The End of the First Part.

BARBETTY'S CHIRURGERY.

The Second Part.

Which treats of *Tumors*, *Wounds* and *Ulcers*: In three Books.

The First Book of the Second Part of *Chirurgery*.

Of Tumors.

CHAP. I.

Of Tumors in general.

A *Tumor beside Nature, is a Disease in which the Parts of the Body are indecently inlarged and extended, so that they are rendred unfit to perform its Actions.*

The *Differences* of Tumors are taken, 1. From the Part Affected, as an Inflammation of the Eyes, Jaws, &c. 2. From the Causes.

The *Causes* are, 1. *The Parts of the Body removed out of their Natural place.* 2. *The four Humors,*

mors, as well Natural as Preternatural, viz. *Blood, Choler, Phlegm, Melancholy*, to which likewise we add *Serum* and *Wind*.

Tumors for the most part are generated from the Humors, and that either by *Congestion*, or *Fluxion*.

They come by *Congestion*, when the Natural heat of the Part being diminished, the good Humors are ill concocted, or the vicious are not sufficiently evacuated.

By *Fluxion*, from a twofold cause, *External*, *viz.* a Fall, Blow, External Heat, too great Motion, *&c.* *Internal*, *viz.* Pain, Superabundancy, Thinness, Acrimony of Humors, *&c.*

The Signs of Tumors are, an Extention of the Part, Pain, Redness, Heat, Hardness, *&c.* But these are better explained in particular Tumors, than in general.

The times of Tumors (for all curable Tumors have four) are as followeth, *Beginning*, when the Part begins to swell; *Increase*, the swelling, pain, and other Symptoms are augmented; *State*, the Symptoms stand at a stay, and grow not worser; *Declination*, when the Symptomes are diminished.

Prognostick.] Tumors produced from Phlegm or Melancholy, are hard of Cure. Those are dangerous, which are generated from corrupt Blood or Choler, which seizeth the Internal Parts, which shew themselves about the greater Vessels, Joynts, Nerves, and the Membranous or Noble Parts: Those that are of great bigness, and that happen in *Cacochimick* Bodies,

They are *Terminated* four wayes; 1. By *Dissipation*, which the lessening of the Symptomes do declare. 2. By *Suppuration*, wherein the Pain and

and Pulsation is increased together with a Fever. 3. By *Induration*, which the too often and immoderate use of Repelling and Dissipating Medicines hath caused. 4. *Degenerating into a Gangrene*, from the defect of Natural Heat.

The Cure is performed two wayes: 1. *By hindering any further Flux to the Part.* 2. *Intromitting that which is already gathered in the Part.*

We stay the Flux of Humors, 1. *By Intercepting.* 2. *By Repelling.* 3. *By Revelling.* 4. *By Derivation.* 5. *By Corroborating the Part it self.*

The Matter already gathered, is taken away, 1. *By Astringing and Repelling Medicines*, to wit, when 'tis thin, and sticks not too firm to the parts. 2. By *Resolvents*, when it is thick, and adheres more firmly to the Part. 3. By *Suppuratives*, when the other are too weak. 4. By *Fire* and *Cutting*, when other means effect nothing.

CHAP. II.

Of Inflammation.

A Phlegmon or Inflammation is *a Tumor besides Nature, from Blood thrown forth into the Skin or Subjacent Muscles, causing Heat, Redness, Pain, Pulsation and Tension.*

Difference.] 'Tis *Perfect*, when from Blood alone: *Imperfect*, when Choler, Phlegm, or Melancholy is mixed with the Blood, and then 'tis called *Phlegmone, Erysipelatodes, Oedematodes, Schirrhodes.*

The

The *Cauſe* is ſometimes *Blood alone*, ſometimes mixt with *other Humors*.

Signs, are Heat, Rednes, Pain, Palſation, Shining, Tenſion, Hardneſs, Reniteney.

Prognoſticks.) An Inflammation of the External Parts frees the Internal from many Diſeaſes; alwayes wholeſome, except from its too great extention it produceth a Gangrene; dangerous and of hard cure is that which ſeizeth on the Eyes, Jaws, *Penis*, *Pudendum Muliebre* and Joynts. In a young perſon, and in Summer ſoon cured; longer of Cure, in a fat, than a lean Body.

The *Cure* hath four *Indications*. The firſt of theſe reſpects a good Diet; let him chuſe a clear Air, his Meat and Drink little, and that cooling; all hot, ſweet and fat things, as Pepper and Ginger, are hurtful; as alſo the motion of the Body, eſpecially of the Part affected; ſleep is very convenient: All Coſtiveneſs, Anger and Venery are noxious.

Second, that ſtops the further Flux of the Humor, which may be performed by Revulſion, Derivation, Repelling and Intereeption; therefore let a Vein be opened as ſoon as poſſible, it being moſt neceſſary: Revulſion is made in the Oppoſite and moſt Remote part, Derivation in the neareſt: If you may not open a Vein, you muſt uſe Leeches and Scarifications. Whilſt theſe things are done, ſeeing the Body is ſeldom clean, but that alwayes there are ill Humors mixt with the Blood, by Purging rightly uſed, and often repeated, as alſo Bleeding, we effect much.

In the mean time, the Part affected requires Repelling Medicines, from which we muſt abſtain, Where, 1. The Noble Parts ſend the Humors

mors to convenient places, and to the *Glandules*. 2. Where the Humors are Malignant. 3. When Critical. 4. When the Body is very impure. 5. When the part affected is very weak or painful. 6. Where the Inflammation is about some Noble Part.

Repelling Medicines.

The Roots of Biſtort, Tormentil; the Leaves of Cyprus, Mirtles, Plantain and Oak; the Flowers of Balauſtians and Roſes, Quince-ſeeds, Red Sanders, Galls, Acacia, Dragons-Blood, Whites of Eggs, Vinegar, Red Wine, Allum, Bole, Oyl of Roſes, Myrtles, *Empl. de Spermate Ranarum.*

Take Roſe-Vinegar two ounces, Whites of Eggs beat together N° 2. Bole-Armenick, three drams; *Lap. Hematitis*, a dram: Mix them.

Take the Juice of Houſleek, Purſlane, and Plantane, of each an ounce; Roſe-Vinegar, four red Wine, of each an ounce and half; Oyl of Myrtles, an ounce: Stir them together in a Leaden Morter, adding to them of the Powder of Pomegranate Rinds and Biſtort, of each a dram: Make it into a Liniment.

3. Indication requires the taking away the Humor already in the Part. Here Reſolvents are firſt to be uſed; but they not effectual, then Suppuratives.

Reſolvents or *Diſcuſſives.*

Roots of Galangal, Orriſe, Dill, Southernwood, Rue, Savin; Flowers of Camomil, Millilot, Elder, Aniſeeds, Carrawayes and Cummin, Ammoniacum,

moniacum, Bdellium, Sagapennum, Tacamahac, Oyl of Dill, Nard, Rue, Bayes, Ointment of *Agrippa*, *Martiatum*; Emplaiſters of Betony, Oxicroceum, Diachilon, Leaven, the Dung of Beaſts, Spirit and Lees of Wine.

Take Roots of Orriſe, Marſh-Mallows, of each an ounce and half, the tops of Wormwood, Flowers of Camomile, Melilot, of each one Pugil; Herbs, of Pellitory of the Wall, Mullein, of each one handful; Meal of Barley, and Fenugreek, as much as is ſufficient; Boil them in White Wine; then being beaten together, add of Oyl of Orriſe and Camomile, of each an ounce: Make it into a Cataplaſm. Or,

Take Cows-dung, three ounces; Juice of Hemlock, one ounce; Oyl of Camomile half an ounce; Caſtor, two drams, Bole-Armonick half a dram; Red Myrrhe, two drams, Saffron, one dram; Meal of Lupines, as much as ſufficeth to make it into a Poultice.

Suppuratives.

Marſh-Mallow Roots, Mallows, Camomile-Flowers, Figs, Galbanum, Bdellium, *Sagapenum*, *Ammoniacum*, Fat of Hogs, Geeſe, Ducks, Hens, Oyl of White Lillies, Ointment of Marſh-Mallows both Simple and Compound, Baſilicon, the Plaiſters of Diachylon, of Muſſilages and Melilot.

Take Onions roaſted in Embers, three ounces; Figs, N° x. beat them together, adding of Ointment of Baſilicon, ſix drams, Ducks-Greaſe, an ounce; Virgins-Honey, and the Meal of Linſeed, of each as much as is ſufficient to make it into a Cataplaſm. Or,

Take

Take the Roots of White Lillies, Marsh-Mallows, of each an ounce and half; Leaves of Mallows, Cows-Parsnips, of each an handful; Figs N° vij, Raisons, six drams; Meal of Marsh-Mallow-Roots, or of Wheat, two ounces; Venice-Sope, three drams; being boiled and strained, add to them of Hogs-grease an ounce, Oyl of Camomil two ounces: Mix them according to Art, and make a Cataplasm.

4. Indication respects the Symptoms, which, if not removed, hinder the Cure, the chief of which are,

1. A *Fever*, The Cure of which concerns a Physitian, except it be removed by Bleeding.

2. *Hardness*, Whose Cure look for in the Chapter of *Scirrhus*.

3. A *Gangrene*, Which is treated of in a particular Chapter.

4. *Pain*, Which we do remove by the following Medicines.

Anodines.

Marsh-Mallows, Dill, Mallows, Camomil, Henbane, Tobacco, Linseed, Seed of Poppy, Fenugreek, *Sperma Ceti*, Cream, White of Eggs, Oil of White Lillies, Linseed, Ointment of Populeon, fat of Hogs, Hens, and Mans Opium.

The great Vertues of the following Poultice I have not seldom experimented.

Take Flowers of Dill, Camomil, of each a handful; Elder, a handful and half, Linseed-Meal, four ounces, Oil of Dill, White Lillies, of each half an ounce; Boil them in Milk to the consistence of a Poultice.

CHAP.

CHAP. III.

Erysipelas.

ERysipelas *is a Tumor beside Nature, from Choler, thrown forth for the most part only into the Skin it self, sometimes on the subjacent Muscles, causing Pain, Heat and other Symptomes.*

Difference.] *'Tis perfect*, when sprung from Choler alone, as it is imperfect, when Blood, Phlegm or Melancholy is mixt with it; from whose Appellation it likewise takes it name, and is called *Erysipelas*, *Phlegmonodes*, *Oedematodes*, *Scirrhodes*; sometimes an Ulcer is joyned with it, which sometimes consumes only the Skin, other times the Flesh it self.

Cause is Choler, seldom alone, sometimes mixt with Phlegm and Melancholy, but oftentimes with Blood or Serum; whence, those Medicines that are proper for a *Phlegmon*, oftentimes do good in an *Erysipelas*.

Signs.] Great heat, sharp pain, Redness mixt with Yellowness, easily giving way to the touch, but as suddenly returning; the Swelling and Extention of the part little, and the Pulsation lesser: which last gave occasion to Authors, of questioning whether an *Erysipelas* ought to be reckoned amongst Tumors. It is accompanied alwayes with a Fever, except from an External Cause.

Prognosticks.] An *Erysipelas* is seldom dangerous, except the Matter be repell'd from the External parts to the Internal; yet more dangerous, when

when it seizeth on the Noble parts and Jaws; and when a Wound, Fracture, Dislocation or Putrefaction are joyn'd with it.

Cure.] What concerns *Diet* here, is first and chiefly to be considered; *Air*, *Meat* and *Drink* must be cooling: all sharp, hot, fat and sweet things hurt, as likewise do too *great motion of the Body*, *Watchings*, *Costiveness*, *Venery* and *Anger*.

Purging is very necessary, therefore those Medicines described in the third Chapter of the first Part, are here convenient.

A perfect *Erysipelas* admits not of *Bleeding*; for the fatness of the Blood bridles the sharpness of the Choler: But if the Fever be vehement, the Flux great, and any Blood (which for the most part happens) be mingled with the Choler, 'tis convenient to bleed, especially in Plethorick Bodies: In delicate and weak bodies, Cupping-Glasses, with Scarification or Leeches, if things should require, will serve.

These being thus done, to provoke Sweat, is the best of all other Remedies.

Outwardly to the affected part, *ought not to be applied*, 1. *Oyl*, or any *fat thing*; as those things which yield matter to the Choler, easily increase Putrefaction: But if yet it is your pleasure to use them, they must be tempered by mixing them with other Medicines. 2. *Repellents*, except the *Erysipelas* be very little, the Part affected remote from the Noble Part, and the Humors be yet flowing, and then they ought not to be used without Resolvents mixt with them.

The Cataplasms described in the foregoing Chapter, may for the most part be applied here with success.

The

The Plaister of Diapalma dissolved in Vinegar, is in daily use; the leaves of Tobacco, Colewort, and Henbane applyed to the part affected, strongly draw forth the heat. There are those which use Sheeps-dung boiled in Wine-Vinegar; as also the Flowers of Camomil, Melilot, and Elders, boyl'd in new Milk.

Chalk powdred, put upon the part, laying Cap-paper over it, quickly and safely cures.

The following Fomentations I have experienc'd to be of great virtue.

Take Red Mirrhe powdred, two drams, Saccharum Saturni one dram, Camphire a Scruple, Opium 25 grains, White-wine six ounces: Let Linnen Clothes be dipt in it, and applyed warm to the part, often renewing them, when dryed, or cold.

Another.

Take the white Troches of Rhasis one dram, Camphire one Scruple, Spirit of Wine an ounce, Elder-water six ounces: Mingle and apply it as before.

Fumes of Mastick, and Frankincense may likewise be used five or six times a day, especially if the Erysipelas be in the Face.

When an Ulcer accompanies it.

Take the white Troches of Rhasis, two drams; Red Mirrhe, Litharge of Gold, of each a dram; Flower of Brimstone half a dram; Sarcocol, two Scruples; whites of Eggs, as much as is sufficient to make it into a Liniament.

CHAP. IV.

Of Oedema.

OEdema *is a Tumor beside Nature, arising from Pituitous Matter, white, soft, without pain, rather caused by Congestion, than by Fluxion.*

Difference.] It is *perfect*, when it proceeds only from Phlegm: *Imperfect*, When mixt with other Humors: Thus *Oedema*, *Phlegmonodes*, *Erysipelatodes*, *Schirrhodes*.

Cause is *Phlegm*, sometimes *alone*, sometimes *confused* with other Humors, for the most part is produced from the ill disposition of the Lymphæducts.

Signs are Whiteness, Softness, yielding to the Fingers, little Pain, and less Pulsation.

Prognostick.] If an Oedema degenerate into a Scirrus, or Abscess, it is hard of Cure. It is dangerous if a Consumption, or Dropsie accompany it; it often happens in old people, Phlegmatick bodies in the Winter-time, and in all those who with immoderate eating and drinking continually debilitate the natural heat.

Cure.] This, as the precedent Tumors, requires a good Diet, *Meat* and *Drink*, as also the Air must be moderately hot and dry: Roasted Meat is better then Boyled; Fruit, Cheese, and Flesh hurt; as also too great a quantity of Meat and Drink: Wine, either of it self, or altered with hot Herbs is good; moderate *Exercises* of the body before Meals, is as profitable, as much *Sleep*

especially

especially diurnal is prejudicial, *Costiveness*, *Rest* and *Sadness* are Noxious.

Bleeding is altogether here unprofitable, and very seldom used; but *Sweating* and *Purging* very necessary, sometimes *Vomiting*. Always regard must be had to the Stomach.

To the Tumor it self. In the beginning we apply Repelling Medicines mixt with Discussives, but so, that the Discussives exceed; afterwards we use only Discussives, though sometimes stronger, sometimes weaker, according to the condition of the Disease.

Take Aloes three drams; Bole-armenick half an ounce, Acacia, Dragons-blood, Cyperus Roots powdered, of each two drams, Saffron half a dram, Rose-Vinegar an ounce and half, Oyl of Mirtles and Earth-worms, of each an ounce, Wax as much as is sufficient to make it into a Liniment.

Another stronger.

Take Crude Brimstone, Ashes of Vine Branches, Sal-gemme, of each two drams, Bean-meal two ounces, Vinegar an ounce, Oyl of Nuts a Dram, Turpentine, and Wax, as much as sufficeth either to make it into the Consistence of an Oyntment, or Cerat.

Another yet stronger.

Take Ladanum, an ounce and half, Frankincense an ounce, Storax Camitis half an ounce, Brimstone six drams, Alom, Saltpeter, Ashes, of each two drams, Cows-dung half an ounce, Oyl of Rue an ounce, Turpentine, and Pitch, as much as sufficeth to make a Plaister.

An Excellent Cataplasm.

Take Roots of Marshmallows, three ounces;

Bryony, Dwarf-Elder, of each 2 ounces; Leaves of Sage and Rue, of each a handful; Savin, half a handful: Boil them in equal parts of Wine and Water, in the end, adding of Vinegar three ounces: then being well beat together, add Bean-meal two ounces & a half, Ashes, half an ounce; Cows-dung one ounce, Salt half an ounce; Leaven an ounce and half; Oyl of Camomil four ounces; Hoggs-grease, two ounces: Make it into a Cataplasm.

If it tend to an Abscess, which rarely happens, this Poultice is excellent, especially if the Vinegar be omitted, and in its room, Onions, and a quantity of *Unguentum Basilicon* be added.

If an Oedema proceed from a Consumption, Dropsie, or ill habit of body, till those Diseases be cured that cannot.

I have used often to Cure an Oedema with this *Wine* or *Purging Conserve*, and exactly rowling the Arms or Legs with Rowlers of 12 or 15 yards long, beginning from below, upwards, and so allowing no liberty for the Humor to descend: By this way the Noble parts are Corroborated, the Preternatural Humors Evacuated, and the External Members in a few days space restored to their former condition.

Take Roots of Orrice Floren. an ounce; Sea-holly and Parsley, of each half an ounce: Rhubarb, Agarick, Trochis. of each three drams, Senna, six drams; Cinnamon two drams; Cloves half a dram. *Sem. Sler. Mont.* two drams; tye them in a Cloth, and let them infuse in two pints of old White-wine, then take every morning four or five ounces for a Dose.

Or,

Or,

Take of Electuary of Juice of Roſes, an ounce; Jalap, a dram; Spirit of Salt, a ſcruple: Mix it in an Electuary.

Let the Patient take the quantity of a Bean, or Hazel-Nut every third or fourth day.

CHAP V.

Of Scirrhus.

SCirrhus *is a Tumor beſides Nature, ſometimes genrated of Tough, Viſcous Phlegm; ſometimes of Melancholy, hard, not yielding to the touch, nor painful.*

Differences; It is perfect when ſprung from Melancholy, or Phlegm alone: Imperfect, when other Humors are unnaturally mixt with it.

Cauſe, is Melancholy, or tough Phlegm.

Signs, great hardneſs void of pain, of a white colour, if from Phlegm; if from Melancholy, Livid.

Prognoſtick.] A Scirrhus, where there is no pain, and upon which the hair grows, is altogether incurable, and if Livid, it is very dangerous, and often degenerates into a Cancer: An imperfect, ſmall, and painful one, by means ſometimes (although very rare) may be cured.

Cure.] If the Scirrhus be produced from Phlegm, the ſame manner of Diet is to be obſerved as in an Oedema, but if from Melancholy, you muſt chooſe a clear Air, moderately hot, and

moist; the Meat of the same quality, and of easie Digestion; all sharp things, and those that are hot in the third or fourth degree, hurt: Let the *Drink* be neither thick nor strong, but warming: *Sadness, Anger, Cares, Venery*, much *Sleep*, hurtful; but moderate *Exercises* very necessary.

Bleeding is scarce ever administred with any success, but Sweating, and Purging with great.

Amongst the *external Remedies* are *Discussives* and *Emolients*; but yet the whole course of the Cure must be mixt, now increasing the quantity of the one, then of the other.

The use of *Suppuratives* in the Cure of *Scirrhus*, hath seldom any good event.

There are those which try cutting out, and burning, which must be attributed to their rash ignorance, except contained in a proper Tunicle, and then the name of *Scirrhus* is ill attributed to that Tumor.

Emollient Medicines.

Butter, the fat of Hens, Geese, Ducks, Hogs, Foxes, Bears, Mans; Mallows, Marsh-mallows, Orrach, Gums, Ammoniacum, Galbanum, Bdellium, Styrax, Liquida; Ointment of Marsh-mallows, Plaisters of Diachilon, of Mussilages, and Mellilote.

Resolvents are set down in the Chapter of a Phlegmon.

Take Gum, Galbanum, Ammoniacum, Opoponax of each an ounce; Flower of Brimstone, Red Myrrhe, of each half an ounce: Camphire, a dram; Oyl of White-Lillies, Duck-grease, of each six drams, Wax, as much as is sufficient to make it into a Plaister.

Take Roots of Marsh-mallows, three ounces, Orrise,

Orriſe, an ounce; Leaves of Colworts, Pellitory of the Wall, Mallows, Flowers of Camomile and Millilote, of each a handful; Linſeed two ounces, boil them in Water; and being well beat together, add to them Horſe-dung two ounces; Hoggs Greaſe, Oil of Camomil, of each an Ounce; boil'd Onions half an Ounce: Make a Cataplaſm.

CHAP VI.

De Tumore Aquoſo, or *Watry Tumor.*

Tumor Aquoſus is a Collection of a Watry Humor in the whole body, or in ſome one part; ſoft, and without pain, yielding to the Fingers, but ſuddenly returning.

Difference. Sometimes the whole body is ſwell'd with water; which Tumor is called *Anaſarca*; ſometimes the lower Belly only, or with the Leggs, and then it is called *Aſcites*, if Wind, mixing with the water, extends the Belly like to a Drum, it is called *Tympanites*: Theſe are three kinds of Dropſies, whoſe Cure rather appertains to the Phyſitian than Chirurgion; Water Collected in the Head, is call'd *Hydrocephalos*; in the Breaſt, a *Dropſie of the Lungs*; in the Navel, a *Hydromphalos*; in the Cods, *Hydrocele.*

Cauſe is Serum, to wit Salt-water, produced from the loſt heat of the parts that ſerv'd to Sanguification, and Chylification.

Signs; This Tumor is ſofter then Oedema, and more yielding to the Fingers, without pain, with ſome itching, and if you look on it by Candle-light, very ſhining.

Prognostick. Watry Tumors are not dangerous, if the principle parts that feed it, are not too much debilitated, yet all are of difficult cure, especially those in and about the Joynts.

Cure; Diet is here the same as in Oedema; All Salt things, indurated with Smoke, and too great a quantity of Drink, are very hurtful; as also Spirit of Wine and Pepper; otherwise hot and dry *Aliments* are best.

Purging is very necessary, provided it be not too great, least the parts already weak, are more weakned; provoking *Sweat* and *Urine*, here are very profitable.

Bleeding, by experience I know it, to be hurtful to all Hydropick people.

Medicines Purging Water.

Roots of *Asarum*, Dwarf-Elder, Jalap, white Mechoacans, Leaves and Bark of Elder, Euphorbium, Turbith, Gum Gutta, Syrup, and Species of Diacarthamum, Cream of Tartar.

Take Syrup of Roses solutive, with Senna, Diacarthamum of each an ounce; Jalap eight grains, Cream of Tartar two scruples, Parsley-water, as much as is sufficient to make it into a Potion.

A Purging Wine which Cures the Dropsie it self.

Take Roots of Gentian, Orrise, Succhory, Fennel, Masterwort, of each an Ounce; the middle bark of Elder, an Ounce and half; Leaves of Ground-pine, a handful; Rosemary two pugils; Flowers of centaury the less, one pugil; Seeds of Smallage, Coriander, Cartaway, Roman-Nettle, Fennel of each a dram; Senna 2 ounces; Agarick three drams; Jalap half an ounce; Turbith, a dram and half: Let them be cut, and infused in six pints of Rhenish-wine: Dose four ounces.

Medicines

Medicines consuming water, outwardly used.

Roots of Orrise, Bryony, Birthwort, Flowers of Elder, Camomil, Leaves of Celandine, Centaury, Calamint, Rue, Dill, wild Marjoram, Sulphur vivum, Salt, Alum, Bay-berries, Ammoniacum, Bdellium.

Take Cows-dung half an ounce, Pigeons-dung two drams, Sulphur vivum, half an ounce; Nitre two drams; Honey, Vinegar, of each an ounce and half; Bean-meal two ounces; Bay-berries, Cumminseeds, of each half an ounce; Oyl of Dill, Nard, of each an ounce; White-wine, as much as is sufficient to make it into a Poultise.

Or,

Take Frankincense, Mastick, Myrrhe, of each half an ounce; Camphire half a dram; Goats-dung an ounce and half; Brimstone, Salt, Cummin Seeds, of each three drams; Turpentine and Wax, as much as sufficeth: according to Art make it into a Plaister.

Hydrocephalus is always of difficult Cure; Water contained in the *Ventricles* of the Brain, or between the Brain and *Meninges* is very dangerous; but less dangerous, when collected between the *Dura* and *Pia Mater*, or between the *Dura Mater* and the Skull: For the *Dura Mater* may be divided with a Lancet, if you can come at it; but least danger of all, when detained without the Skull.

Purging Sudorificks and Diureticks seldom do any good here, but *Cauteries*, *Blisters*, *Issues*, *Seatons* are more profitable: but sometimes we are forc'd to come to Incision or Ustion, which Remedies although dangerous, have Cured several.

Some Chirurgions use with an Actual Cautery to burn the Skin of the Head in five, six, or more places:

places, but not together and at once, but at several times, lest the Patients strength should be too much spent, continually chooſing that place, which the watry Humor makes, to appear moſt convenient.

Some with a Lancet open the skin neer to the Sagital Suture.

Which of theſe Remedies are beſt, cannot abſolutely be declared. I much eſteem an Actual Cautery, when the Water is between the Skin and the Skull; but if under the Skull, between the Meninges, I do not ſee how this operation can be performed without a Lancet.

But which of them ſoever you chuſe, have a care of diſcharging all the Water at once, for in the very Operation it ſelf the Patient dyes, or at leaſt is very much debilitated, for till the end of the Cure, all the Water is not to be taken away, leſt the debilitated Parts deprived of that heat which the Water poſſeſt, do corrupt: but rather what remains muſt be conſumed by Internal and External Diſcuſſives; and this is to be obſerved in all Watry Tumors that are Cured by a Paracentheſis.

In the ſame manner the *Watry Tumor* in the *Navel* and *Cod* ought to be handled, after other Medicines have been applyed in vain.

Dropſie of the Breaſt belongs not to Chirurgery, except where a Paracentheſis is convenient, concerning which, Read the 15th Chapter of the firſt Part.

CHAP.

CHAP. VII.

Of the Flatuous, or *Windy Tumor*.

The Flatuous Tumor is a Diſeaſe produced of Wind, not yielding without reſiſtance to the fingers.

Difference. Some are without pain, others with it; in the one, the wind is in motion, in the other, quiet.

Cauſes of Wind, are Phlegme, eſpecially when mingled with Choler, which, as Ferment doth froth, ſo it proceedeth wind; it always happens upon a debility of the Parts, by reaſon of which, although endeavouring to concoct the Humors, yet are notable.

Signs are Inflation, with a reſiſtance yielding to the Fingers, a rumbling noiſe, eſpecially if ſhaken.

Prognoſticks.] It ſeldom comes in Fleſhy parts; in other parts it brings many inconveniencies, in weak and Cacochymick bodies, it's of difficult and tedious Cure.

Cure.] The ſame Diet in here to be obſerved as in an Oedema: Peaſe, Beans, Turnips, Cheſtnuts, and all Crude Fruit do extreamly hurt; On the contrary, Wine, and other things moderately warming, profit; as alſo Spices, and thoſe things which diſperſe Wind, as Nutmegs, Mace, Aniſe, Carrawayes, Lovage.

The Stomach, and the whole Body require Purging

Purging and Corroborating Medicines, always mixing with them those that disperse Wind, and sometimes also where Corroboratives are used, *Anodines*; *Laudanum*, *Opiatum* cautiously used (that is, half a grain or a grain for a Dose) is here excellent, for besides, that it ceaseth pain, it also by its Diaphoretick quality removes the cause of the Disease: to cause Sweat, is as necessary, as Bleeding is unnecessary.

Outward Medicines discussing Wind.

Roots of Galangale, Lovage: Herbs, Dill, Mint, Marjoram, Penyroyal, Rosemary, Rue, Chervil: Flowers of Elder, Mellilot, Camomil: Seeds, Anise, Carraways, Cummin, Fennel, Nutmegs, Cardamum, Castor: Oyl of Rue, Nard, Spike, Dill, Carraway distill'd, Mace, Nucista, expresst and distill'd, Mellilot Plaister.

Take Oyl of Wormwood, Rue, of each two drams; Oyl of *Nucistæ* expresst, one dram; of Mace distilled, half a dram; Castor, dissolved in *Aqua vitæ*, two Scruples: Make it into a Liniament.

Or,

Take the Leaves of Rue, Calamint, of each half an handful; Bean-meal, two Ounces; Seeds of Cummin and Anise, of each half an ounce; Bayberries, Salt, of each three drams; Nitre, Brimstone, of each a dram; Goats-dung, six ounces; White-wine, as much as is sufficient: Mix them, and boyl them into the consistence of a Cataplasm.

Or,

Take the Roots of Pellitory of Spain, half a dram; Venice-Sope, three drams; Castor dissolved in *Aqua vitæ*, one dram; Seeds of Cummin, Carraways,

Carraways, of each two drams; Ashes of Earth-worms, half a dram, Oyl of Spike, half an ounce; Mastick, three drams, Wax and Turpentine, as much as sufficeth: Make it into a Plaister according to Art.

CHAP. VIII.

De Herpete.

Herpes is a Tumor besides Nature, sprung from yellow Choler, disfiguring the skin with corroding and spreading Pustules.

Difference.] Where Choler solely predominates, it produceth *Herpes exedens*, but where Phlegm is mixt with Choler, a *Herpes Miliaris*.

Cause is sometimes Choler alone, sometimes mixt with Phlegm, and I see not why the *serum* of the Blood may not often be here taken as a cause: For the Lymphaducts being out of order, do produce mutations in mans body, heretofore unknown.

Signs.] Are little Pustles, like to Millet-seed, a heat, itching; and after rubbing, a moistness, and little Ulcers.

Prognostick.] *Herpes* is of difficult Cure, but of little danger, unless so rendred by the immoderate use of repellents.

Cure] The same Diet is here required, as in an Erysipelas. Moreover, *Purging* is here very necessary, *Bleeding* not to be allowed of, the use of *Baths* is excellent, and their waters taken at fit times,

times, safely Cure this Disease: *The Decoctions of China, Salsa*, &c. also benefit much.

Outwardly. Falling Spittle oftentimes doth good, because if it should be repelled to the internal parts, it causeth a Feaver, and other ill Symptoms.

With great success many times, have I seen applyed the Pouder of *Lapis Scissilis*, mixt with Vinegar, some use Mustard boyl'd in Butter; to which they add some Gunpowder. Lye also, and Urine have helpt many; *Unguent. Fuscum*, of *Felix Wurtz* is excellent here, as also the following Plaister.

Take Sarcocoll, Crude Brimstone, of each two drams; Mastick, Frankincense, *Lapis Calaminaris*, of each half an ounce; white Troches of Rhasis, Litharge of Gold, Myrrhe, of each three drams; Goats Suet, half an ounce; Wax and Turpentine, so much as is sufficient to make it into a Plaister according to Art.

Take the Powder of Chalk mixt with Cream, and anoint the part, fomenting it before with the hot Lees of White-wine.

In a rebellious Herpes.

Take the brown Oyntment of *Felix Wurtz*, three drams, White Oyntment with Camphire, one dram and half, Cerusse, Brimstone, Myrrhe, of each a dram; Litharge a dram and half; *Mercurius dulcis*, Verdigrease, of each a scruple and half; Oyl of Roses, as much as sufficeth: make it into an Oyntment.

Or,

Take *Lapis Prunella*, one dram, Flower of Brimstone, half an ounce, Salt of Saturn. a dram and half, old Oyl of Rape, as much as sufficeth to make it into a Linament.

CHAP.

CHAP. IX.

Of Atheroma, Steatoma, and Meliceris.

A Theroma *is a Tumor beſides Nature, contained in a proper Coſt, cauſed from a Humor like to the Pap of ſodden Barley, without pain, of the colour of the skin, not yielding to the fingers, nor when they are removed, ſuddenly ſwelling out again.*

Steatoma *is a Tumor beſides Nature, contained in its own proper Tunicle, cauſed from a Matter like to Suet, and of the ſame colour, ſoft, from a ſmall beginning, by degrees increaſing, diffidently yielding to the Fingers, but they being removed, returning again to its former greatneſs.*

Meliceris *is a Tumor beſides Nature, included in its proper Tunicle, engendred from a Humor, like to Honey, without pain, round, eaſily yielding to the Fingers, which being removed, returns again to its firſt Figure.*

Differences.] The Matter like to Honey, Suet or Pap, if gathered about the Joynts, is called a *Theca-lion*, if about the Glandules of the Neck, a *Glandula, Scrophula*, or *Struma*; if in the Arms, Legs, or Head, *Turberculum*; if from the Pox, *Tophus*.

Cauſe of theſe Tumors is *Phlegm*, in the one more, in the other leſs, reciding from its Natural Conſtitution; and ſometimes, but very ſeldom, mixt with Melancholy.

Signs are declared in their Definition.

Prognoſticks.] They are ſcarce ever cured, but by Manual Operation: If the Veſicle be broken, or

or not all taken out, there remains a Fiſtula, or a foul Ulcer: The Cure of which will be both difficult and tedious.

Cure.] They are ſometimes but very rare, removed by ſtrong Reſolvents: I have Cured ſome with Balſom of *Peru*; ſome uſe *Oxicroceum* Plaiſter, or the following:

Take *Laudanum* an ounce, Red Mirrhe, three drams, Camphire a dram: Mix them, and make it into a Plaiſter according to Art.

Another.

Take Gum *Sagapenum Ammoniacum*, of each half an ounce; Roots of Pellitory, *Euphorbium*, of each a ſcruple and half; Brimſtone three drams, Oyl of Amber a dram: Make it into a Plaiſter.

If it break, and the Matter diſchatge out of the Tunicle, then muſt you uſe Corrolives, for other Medicines are too weak.

Corroſives, and *Cauſteticks.*

Roots of black Hellebore, burnt Galls, burnt Date-ſtones, Verdigreaſe, burnt Alum, Quick Lime, Vitriol, Mercury Sublimate, and Precipitate, Spirit and Oyl of Vitriol, Spirit of Salt, the Liquor of Tartar, Oyntments of *Ægyptiacum Fuſcum* of *Felix Wurtz*, Aſhes of Oak, and Vine-branches.

Some uſe Arſnick, and Orpment, but they are not uſed but with the greateſt danger in thoſe places known by Anatomy, under which the Nerves, lye, to the Skin, and Carnous Excreſcencies, they may be applyed with the leſs danger.

The following Oyntment will ſuffice.

Take Vitriol well ſweetned, a dram; Verdigreaſe, a ſcruple, Oyntment of *Ægyptiacum*, half

half an ounce: Make it into an Oyntment.

If they tend to suppuration, which is very seldom, let the Surgeon assist Nature with Maturatives; but the safest Method of taking away these Tumors, we have shewn in the twelfth Chapter of the first Part.

CHAP. X.

Of Scrophula, Struma, or Kings-Evil.

STruma or Scrophula are Tumors besides Nature, contained in a proper Tunicle of their own, from a Melancholick or Pituitous Humor; shewing themselves in manner of Tubercles in the Neck and adjoyning parts.

Difference.] They are sometimes moveable, sometimes fixt; sometimes but one, sometimes many.

Cause is *Melancholy* or *Phlegm*, or both mixt together.

Signs.] Are Hardness, Inequality, and seldom paintul.

Prognosticks.] These Tumors are of long and difficult Cure; especially if many, or fixt; they are dangerous when they grow painful, and threaten to become cancerous; or if fixt to any great Nerve or Vein; sometimes they are Hereditary, and sometimes peculiar to a Region or Clyy; when Cured, they for the most part leave behind them great Scars; where the recurrent Nerve is divided, the Speech is lost, and oftentimes Life it self.

Cure.] *Diet* must be here the same, as in a Oedema or Scirrhus.

Purging is necessary, but not *Bleeding*; provoking sweat by the same way and means as in the *French Pox*, effects much; yea, it alone cures the Kings-Evil.

Sometimes they are consumed by Internal Remedies, that have appropriated qualities of curing *Scrophulaes*.

Such are these:

Roots of round Birth-worth, Briony, Sow-bread, Dropwort, Devils-bit, Orrise, Pimpernel, Pellitory of Spain, Squills, Vervain, Figwort, Leaves of Cypress, Bawm, Rue, Savory, Flowers of Broom, burnt Crabs, burnt Eggs-shells, *Sal Gemma*, Spunges.

New Spunges are much commended, if boiled in Ale, drinking thereof three or four times a day, or calcined, and taking half a dram of the Powder Morning and Evening; The following Powder is likewise very much praised.

Take the Ashes of Sea-Spunges, *Os Sepia*, Long Pepper, Cinamon, *Sal Gemma*, Pellitory of Spain, Cypress Nuts, Galls, Red-Rose Leaves, of each half an ounce: Make a Powder. Dose, two scruples or a dram.

Or,

Take of Spunge-stone, three drams, *Sal Gemma*, two drams, Salt of Tartar, a dram: Make a Powder. Dose, two scruples, or a dram.

Outwardly Resolving and Emollient Medicines are applied; which, if they effect it not, then use Suppuratives; when 'tis suppurated, it is to be cured as a malignant Ulcer.

But if the above-named Medicines signifie nothing,

thing, then we come to Corrosive Medicines, and to the Incision-Knife.

An excellent Resolving Emollient Plaister.

Take Gum, *Galbanum*, *Ammoniacum*, *Bdellium*, of each half an ounce; Bay-berries, Stavesacre, Pellitory of Spain, Cummin, of each six drams; Pigeons-dung, a dram; Goats-dung, three drams; Hogs-grease, an ounce and half; Oyl of Camomile, an ounce; Wax and Pitch, as much as is sufficient to make it into a Plaister.

A Liniment that stops the Flux of Humors, and oftentimes wholly cures the Kings-Evil.

Take Oyl of Myrtles and Bayes, of each half an ounce; Ointment of Martiaton, an ounce; Quicksilver extinct with Flower of Brimstone, six drams: Make it into an Ointment.

Let the *Scrophula* be annointed with it twice a day, and if they are not consumed, at least they will be diminished: but the Chirurgeon must look into the Patients mouth each day, lest upon the continual use of Mercury, there follows a Flux, which causes a swelling of the Tongue and Jaws: The Plaister of Frogs, with Mercury, is likewise good here.

Or,

Take Gum, Caranna, an ounce; crude Mercury extinct in Turpentine, three drams: Make a Plaister.

If the Tumor be painful, there may be added to this Plaister a dram of *Opium*, which hath the virtue of resolving and easing pain, and is not cold, but hot.

Suppurating Medicines are set down in the second Chapter, and Corrosive in the foregoing Chapter.

In Suppurated and opened Scrophula's, this Ointment is much esteemed.

Take Oyl of Bayes, Ceruse powdred and allayed with *Aqua vitæ*, of each an ounce, Rock-Allom, half an ounce, Salt, two drams: Make it into an Ointment.

CHAP. XI.

Of a Bubo.

BUbo *is a Tumor (besides Nature) of the Glandules, from impure Blood, Red, Painful and hard.*

Difference.] Where little, and not painful, and easily brought to Suppuration, 'tis called *Phyma*; but where there is more of Choler in it, *Phygeton*; in the Arm-pits, *Pasus*; behind the Ears, *Parotis*: The one *Malign* or *Pestilential*, the other or sometimes contracted from unchaste embraces, then 'tis called a *Venereal Bubo*.

Cause is Blood, never alone, but alwayes mixt with some other preternatural Humor.

Signs, are redness about the Glandules, pain, heat, tension, hardness, pulsation, and sometimes a Fever.

The Liver and Spleen, according to the opinion of the Antients, discharge themselves into the Groins, the Breast and Heart, at the Arm-pits, the Brain, at the Glandules of the Ear; but now far other use is attributed to the Glandules. Of which there are several Tracts written, and we shall give our opinion in another place.

Prognosticks.] The *Bubo* that is not *Malign*, is not

not dangerous, except it be long in discussing, or suppurating, and then fear lest it Fistulate: In the Arm pits it is sooner brought to matter, than in the Groins, and here sooner than behind the Ears: On the contrary, a *Malign* is for the most part a sign of sudden death, although all outward signs may appear well.

The *Venereal* is not mortal, but of hard Cure, and for the most part precedes the Pox; chiefly when by Bleeding, or the use of repelling Medicines the matter is returned from the External, into Internal Parts.

Cure.] Diet the same as in a Phlegmon: In a *Benign*, *purging* is necessary, provided it be not with too strong Medicines: *Bleeding*, except a great Fever, or a Plethora require, I admit no more of it here, than of *Repellent Medicines*; for 'tis unseemly that Nature, assisted, should return that into the Inward Parts, which Nature her self did eject (which for the most part is Critical) *Sweating* in all *Buboes*, profits much: *Scarification* hath no place here, except in Malignant, nor *Leeches*, but where very much inflamed.

The *External* Cure is to be managed so, that the Humor may be dissipated with *Resolvents*, which by reason of the frigidity of the *Glandules*, are required the stronger; adding also Attractives to them; for in all, I suspect lest the Matter be not perfectly thrown forth: But in a painful *Bubo*, 'tis first necessary *to ease the pain*, before you come to any other Medicines.

In extream pain,

℞ Take Mussilages of the Seeds of Fleawort, an ounce and half; the Yolk of an Egg, Saffron, a dram; Fresh butter, half an ounce: Make it into a Linament.

Or,

Take Leaves of Mallows, an handful; Meal of Marsh-Mallow Roots, and Fenugreek-seeds, of each two ounces; Barly-meal, an ounce; Ducks-grease, Oyl of Dill, of each half an ounce: Boil them in Milk, to the consistence of a Cataplasm.

Resolvents are above described; Attractives shall be presently set down.

If it yield not to discussion, Suppuration is to be endeavoured; which is of all, the safest method: Being suppurated, let it forthwith be opened; but rather by Incision, than Cautery: And so let it be kept opened until the whole Tumor be dissolved.

In *Children*, for the most part, we commit it wholly to Nature, only prescribing a good Diet, and forbidding the often touch of the part affected with the hands, or we apply the Plaister of Diachilon, or of Mucilages: 'tis also often cured by the only using of Oyl of Olives, Rape, Camomil, or White Lillies.

In a *Pestilential Bubo*, neither Bleeding or Purging (whatsoever others say) must be used: Sudorifick and Refrigerative are convenient; outwardly *Attractives* in the beginning are necessary.

Attractives.

Roots of Aron, Briony, Birthwort, Pellitory of Spain, Dittany, Cresses, Virgins-Flower, Leeks, Nettles, Garlick, Onions, Figs, Mustard, Gums, *Galbanum*, *Ammoniacum*, *Euphorbium*, *Succinum*, *Cantharides*, *Castor*; Ox-gall, Pigeons-Grease and Goats-dung; Quick-Lime, Nitre, Brimstone; Leaven, Black-sope, Plaisters of *Diachilon*, *Oxycroceum*, Thereacle, Mithridate.

Take

Take Roots of Marſh-mallows, an ounce; Onions two ounces; Elder and Camomil-Flowers, of each a pugil; Figs, N° xij. Fenugreek-meal, two ounces; Pigeons-dung, two drams; Theriacle, three drams: Make a Cataplaſm.

Or,

Take Roots of Pellitory of Spain, Muſtard-ſeed, of each two ſcruples; Salt, two drams; Treacle, three drams; Gum *Ammoniacum*, *Diſſolved* in Vinegar, as much as ſufficeth to make a Plaiſter.

Many take a Hen or Frog divided in the midſt, and apply them warm to the affected Part, often changing them: Some apply to the Part the Breech of a live Hen or Pigeon, the Feathers being pulled off: Others take away all by Inciſion, which is very dangerous, and not to be permitted; but they proceed beſt, who forthwith in the very beginning apply a Vificatory to the *Bubo*; then the following morning or evening open the Bliſter, and afterwards dreſſing it with Attractives. This is of great uſe, and of much eſteem.

Take the Plaiſter of *Dinchilon* with Gums, of Muſſilages, of each half a pound; Ointment of Baſilicon, four ounces; Muſtard-ſeed, three ounces: Make a Plaiſter. More of the Cure of a *Bubo*, look in our deſcription of the Plague.

In a *Venereal Bubo*, you muſt neither Bleed nor Purge, as long as there remains any hope of Curing it by External Remedies, leſt the Malignant Humors which Nature threw out, ſhould be returned again into the Body, and ſo occaſion the Pox: But Suppuration is to be endeavoured by all means, and the Suppurated Tumor

forwith, yea, although the Matter be not perfectly concocted, it is to be opened; if it is rough, as for the most part it is, *Attractives* are to be applied, especially Cupping-Glasses; they not being sufficient, when the whole Mass of Blood is infected, the Cure of the Pox is to be prescribed; often using this following purging Decoction.

Take Roots of China, Sarsaparilla, of each three ounces; Polipody, an ounce, Bark of *Guaicum*, three ounces; Senna, two ounces, Agarick *Trochiscatum*, two drams; Cinamon, two drams: Infuse in a sufficient quantity of Water over the Fire for 24 hours, then boil them to three quarts, and to the strained Liquor add Syrup of Roses, Sol: with Senna, four ounces; mix them. Dose, six or eight ounces.

Some make this Decoction with stale Beer or Wine, but in these things the Surgeon ought to consider the most manner of living of his Patient, his Temperature and Age: If you desire that it purge you more, you may add a dram or two of *Trochisc. Alhandal*; and if not strong enough, then you may mix it with five or six grains of white *Precipitate*, provided strength gives leave.

CHAP.

CHAP. XII.

Of the Carbuncle.

A Carbuncle is a Tumor besides Nature, from adust Blood, corrupting the Part where it is collected.

Difference.] 'Tis called by the Greeks, *Anthrax*; by the Latines, *Ignis Persicus*; by the Germans, *Bem Kohl*; some endeavour a difference between an *Anthrax* and *Carbuncle*, but lose their labour. There is no other difference, but sometimes it is bigger, sometimes lesser, sometimes more malignant, other times less.

Cause is *adust Blood* assuming the nature of black Choler, and so apt to putrifie.

Signs are, sometimes but one great Pustule, sometimes many little ones; which being opened, appear black, and all about enflamed: The Crust being removed, instead of Matter, you find spungy flesh; the Part affected is very painful, a Fever present and watchings.

Prognosticks.] Very dangerous, when black, especially in a Plague-time, when near to a principal Part, if great, and suddenly vanishing.

Cure.] Strong *Purging Medicines* I much mistrust, *Glisters* or *Insening Medicines* will suffice; viz. *Cassia Fistula*, *Manna*, *Tamarinds*, *Cream of Tartar*, &c. But more suspitious to me is *Bleeding* to fainting (as *Galen* writes) and in its room, *Leeches* or Cups, with Scarification will be sufficient. But I relie most upon Sudorifick and Refri-

frigerating Medicines; using outwardly the same Medicines as in the Plague.

This Plaister is much commended to make a *separation of the Eskar.*

Take old Threacle, Mithridate of each half an ounce; Leaven, Turpentine, of each two ounces; Honey of Roses, an ounce and a half; Fresh butter, two ounces; White Vitriol, an ounce; Soot, two ounces and half; Black Sope, three ounces; Saffron, three drams; Yolks of Eggs, N° iij. Mix them, and make a Plaister according to Art.

The External Medicines ought often to be changed: Here is no need of *Suppuratives*; for the Humors are easily corrupted of themselves, in the place of which, the Eskar being separated, may be used *Ung. Fuscum* of *Felix Wurtz*, *Egyptiacum*, and Honey of Roses, *&c.*

CHAP. XIII.

Of a Cancer.

A *Cancer is a Tumor besides Nature, sprung from black Cholery, round, hard, livid, painful, full of turgid Veins, resembling the feet of a Crab.*

Difference.] Where not exulcerated, by the Greeks it is named *Carcinoma*; when ulcerated, *Plagedena*, by the Greeks; and by the Germans, *De Wolf.*

Signs; In the beginning difficultly known, scarce equalling a Pea in bigness; then sometimes increasing suddenly, sometimes slowly, it makes

it

it self, by its grievous Symptoms, easily enough to be known: The Tumor is hard, painful, hot, livid or black, round with some inequality, full of swell'd Veins.

Prognostick.] A Cancer is seldom Cured by Medicines, often by Chirurgery, but not without danger; sharp Medicines exulcerate it: It is imprudence to attempt an occult Cancer, or that is detained in any Cavity of the Body, except it be very little, and may easily be taken away by Incision.

Cure.] *Diet* the same as in *Scirrhus*; frequent *Purging* convenient, be cautious in *Bleeding*, as also in Scarification. The Moneths flowing in Women, and in Men the Hemorrhoids, are very beneficial.

Externally, Suppuratives and strong Discutients are hurtful; the following, good.

Medicines in a Cancer.

Roots of *Arum*, Dropwort, Gentian, Figwort, Mullein, Leaves of Maidenhair, Housleek the greater, Agrimony, Tobacco, Plantain, Nightshade, Hounds-tongue, the Spawn of Frogs, of Whales, Burnt-Crabs, Burnt-Lead, Mans-Dung, Plaisters of *Diapompholigos*, of Lead, *Diafulphuris*, of Frogs with Mercury, Sugar of Saturn, Camphire.

For a Cancer not ulcerated.

Take the Juice of Plantain, Endive, Housleek the greater, Nightshade, Rose-Vinegar, Oyl of Myrtle, of each an ounce; Venice-Turpentine, two drams: Stir them together in a Leaden Morter, with a Leaden Pestle, adding of the Rinds of Pomegranates and Citrons, of each a dram; Bole-armenick, Burnt-lead, Camphire,

of

of each half a dram: Make it into a Linament.

For an Ulcerated Cancer.

Tak Galls, Pomegranate-Rinds, of each half an ounce; Burnt Talk, an ounce; Bole-armenick, half an ounce; Burnt Lead, two drams; Ashes of Crab-shells, a dram; Turpentine and Honey, as much as is sufficient: Make an Ointment.

By the use of these or the like Medicines, Cancers that are not Ulcerated, have been often Cured; and Ulcerated Cancers have been for many years kept in the same condition; but for the most part, the business is committed to Chirurgery: The Part affected being held by a pair of Forceps, is to be cut off by the help of a convenient Knife, but so that nothing of the Cancer be left behind, lest it put afresh, others holding it only with their left hands, or passing a string quite cross, take it off by Incision.

Many with great praises extol *prepared Arsenick*, or *Mercury sublimate*, but in deeds answer not their words: Its preparation *John Fabre* in his *Myrotheca Spagyrica* teaches:

The Quintessence of *Arsenick*.

Take Cristalline, Arsenick, with the like weight of Salt-Peter, and reduce all into the finest Alchool, and put them into a very strong Glass Retort, to which joyn a Recipient big and large enough; being well luted together, distil them with Embers, observing the degrees of the Fire, at first, gentle, at the end very strong and violent, until all the Spirits of the Arsenick and Saltpeter are gone forth: They being come forth, and the Vessels cold, disjoyn the Recipient

out from the neck of the Retort, having great care of the Spirits that are within, which are venemous; suddenly stopping the mouth of the Receiver with a strong Lute, afterwards breaking the Retort, and that which is in the bottom, must be powdered, and put into a new Retort, and upon the Powder that is put into the Retort, the Spirits of Arsenick which was in the Receiver, is to be poured and distill'd again, being luted well, as at first: This is to be don three or four times till the Arsnick be well calcined with the Saltpeter, then lay the Arsnick upon a strong Tile, and for a whole day make a strong fire about it; so that which could not be Calcined by Distillation, may be Calcined and burnt by an open Fire: this Calx of Arsnick is to be dissolv'd in Distilled Rain-water, and the Solution so cleansed and depurated, from its Terrestrial Excrements, and by filtring made clear and limphid, is to be evaporated and dried, and calcined again with a very strong Fire, until it remits no Faces in the solution, but the whole Calx is dissolved, and the Water remains most clear and limphid; then the Water being Evaporated, it is to be dried. Then lastly, its above reserved Spirit is to be poured upon it, and mixt with it; but first it ought to be seven times rectified. You must make this Conjunction in a Matrace (a Glass Vessel so called, by reason of its roundness in the bottom, and long neck) and in a warm Balneum, till the Calx hath imbibed its Spirit; then in a Glass-Alembick, you shall separate by Balneum whatsoever of watrish Humidity can be separated, and there will remain in the bottom the Buttery Calx of Arsnick; of great virtue, which must be kept in a Glass-Vessel well stopt.

Take some of this Powder, mix it with

Ba-

Basilicon, or a Digestive; and thus mixt, apply to the Ulcerated Cancer.

CHAP. XIV.

Of a Gangrene and Sphacelus.

A Gangrene *is a beginning-mortification of the soft parts of the Body, most commonly following a great Inflammation, or ill cured.*

Sphacelus, Necrosis, Syderatio, is a perfect mortification not only of the soft, but of the hard parts also.

Differences.] In a *Sphacelus*, the parts are altogether dead; but in a *Gangrene*, they begin but to die, and the sense is not perfectly abolished; *there* the Skin is first pallid, suddenly livid, then black; *here* in a manner red; greater stink in *that* than in *this*.

The *Causes* of both are six. 1. The External cold of the Air, or Repelling Medicines. 2. *External heat*, from burning, or use of Corrosive Medicines. 3. *A Defect of Nutriment*, as in an *Atrophia*, either by the compression or obstruction of the Vessels, by reason of which straightness the Blood cannot pass to the Part. 4. *The stopping of the Pores, or Perspiration hindred*, from whence comes a Suffocation of the Natural heat. 5. *Malign Humor*, either begotten in the Body, or contracted from venomous Beasts, or Medicines. 6. The *Scurvy*, which by a peculiar property, causeth the Parts sometimes to mortifie.

Signs.] A *Sphacelus* is easily to be known, the Part looks black; Spungy flesh, sense, heat and pulsation abolisht.

But

But the *Signs of a Gangrene* vary according to the variety of the Causes: If contracted *from cold*, a great pricking pain is felt in the affected Part: First, 'tis red, then pale, at length black: The Natural heat by degrees is extinguished, and there happens a shaking, not unlike that in a Quartane Ague.

If caused from an *External heat*, or stopping of the Pores, the Redness is changed into White, then into Black, Pulsation and Pain cease, the Senses lessened, and at last there appear some Pustles, from whence issue a gleety Humor.

If *from defect of Aliment*, there is neither Pain, Inflammation or Tumor; the Body waxeth cold, and for the most part seizeth upon the Joynts.

If from a *venomous Creature or Humor*, great pain, and a Fever alwayes accompany it; frequent faintings, and oft-times *Deliriums*: Here ariseth a Pustle, under which appears a black spot, which spreads it self over the whole Part.

If from the *Scurvy*, it for the most part begins at the Toes, or shows it self outwardly with blackish spots and lines, which degenerates into a dry Crust, upon which follows a numness of the Part, and at length a mortification it self, without any stink: Sometimes without pain, other times very great, especially in them that are given to passion or sadness.

Prognostick.] Except a Gangrene be suddenly stopt, it degenerates into a *Sphacelus*; easilier cured in Young then Old People: The Humors continually flowing to the Part affected, bring danger with them, and that very great, if they are Malignant: In the Cavities of the Body, to wit, in the Mouth, Privy Parts, and Fundament, *&c.*

a

a Gangrene is alwayes difficult of Cure, as also that which happens among the Nerves and Tendons; in Hydropicks alwayes mortal: That which happens from the Scurvie, may be spuh out for many Moneths, but seldom cured.

A *Sphacelus* is not cured but by the Knife and Fire.

Cure.] Diet must be good, the Air, Meat and Drink generally cooling and drying: But seeing the Causes are various, we leave it to the Physitian to prescribe what is convenient; who also must well distinguish concerning *Bleeding* and *Purging*, when to be used with advantage or disadvantage. Sudorificks and Cordials are of great use here, and because that in this and other Diseases, they are often used, I thought it convenient to set them down in this place.

Diaphoreticks or *Sudorificks.*

Roots of *Angelica*, *Scorzonera*, Lovage, *Contrayerva*; Herbs, Holy-Thistle, Fumitory, *Scordium*; Harts-Horn, Unicorns-Horn, Bezoar, the Stone of an Indian Hog, called *Pedro Pores*; Wittets, of Threacle, Alexipharmick, *Diascordium*, Threacle, Mithridate, *Species Euberantia*, Antimony, Diaphoretick, Salts, of Wormwood, Prunella, Holy-Thistle, *Rob. Sambuci.*

Take *Diascordium Fracastorii*, one dram, Alexipharmick-Water, two drams, Holy-Thistle-water, as much as is sufficient, Syrup of Limons, half an ounce: Make a Potion.

Cordials.

Waters of Roses, Borage, Bugloss; Conserves, of Rosemary-flowers, of Roses, Violets and Borage; Bezoar, Harts-horn, Unicorns-horn; Confections of Alchermes, Hiacinthus; Rob. of Red Currans,

of

of Barberries; of *Scorzonera* Roots Candied, Citron and Orange-peels Candied, *Saccharum Perlatum*, Salt of Coral.

Take Water of Borage, Bugloss, of each two ounces and an half; Alexipharmick-water, three drams; Cinnamon water, two drams; *Saccharum Perlatum*, half an ounce; Confection of Hiacinth, half a dram; prepared Crabs-eyes, two scruples; Spirit of Salt, four drops: Mix them.

Let the Patient now and then take one or two spoonfuls.

Externally, Cupping-glasses and Leaches, but *chiefly Scarification* must be used; although there are some of our Chirurgeons, which altogether reject Scarification, nevertheless happily curing their Patients by the following Medicines, which resist Putrefaction.

External Medicaments against a Gangrene.

Roots, of Angelica, round Birthwort, Herbs, of Wormwood, Holy-Thistle, Tobacco, Rue, Colewort, Germander; Flowers, of Elder, St. John's wort, Mellilot, Camomil; Lye, Brine, Ink, Urine, Spirit of Wine, Threacle, *Ung. Ægyptiacum*, *Fuscum* of *Felix Wurtz*, Horse-dung.

Some mix Hemlock in Plaisters or Poultices, and use it with success. Or,

Take the tops of Wormwood, Camomil, and Elder-flowers, of each half a handful; Leaves of Germander, a handful and half; Rue, half a handful; Crumbs of brown Bread, seven ounces; Horse-dung, three ounces: Boil them in Brine, in the end adding to them, Ink, two ounces; Spirit of Wine, three ounces: Make it into a Cataplasm.

The sound Part ought also to be preserved;

partly by keeping the Humors from flowing, and partly by keeping the Gangrene from spreading; for this purpose, the Red defensive Plaister, or the *Cure of Virgo* is good; as also this following Cataplasm.

Take Bolearmenick, half an ounce; Powder of Galls, Cypress-nuts, Pomegranate-rinds, of each three drams; Barley-meal, six ounces; *Oxymel simplex*: as much as is sufficient to make it into a Cataplasm.

Or,

Take Seal'd Earth, Bolearmenick, of each half an ounce; Prepared Harts-horn, a dram; Camphire, a scruple; Rose-vinegar, an ounce; Oyl of Mirtles, three ounces; White of an Egg: Make it into a Liniment.

Cure of a Gangrene caused from Cold.

The part gangren'd, if not grown black, but as yet appears very red with pain, the Patient is to be placed at the fire, but not too near, but at a distance, that the heat by degrees may be again restored to the Part; and to that purpose, strongly rubbing it with Snow, or cold water, giving also to the Patient, *Treacle*, or *Mithridate*, in warm Wine. If the pain and cold remit, let the Part be embrocated very warm, with Oyl of *Dil*, *Camomil*, *bitter Almonds*, *or Earth worms*, &c. a Decoction of congeal'd Turneps is good to foment withal; then are required both stronger and hotter Medicines, *viz.* Oyl of Earth, of Tiles, Turpentine, Castor, Treacle-water, Mithridate: or use the following Fomentation.

Take Herbs of *Scordium*, a handful and half; Swallow-wort, a handful; Rue, half a handful; Seeds of Roman Nettle, Cresses, of each three drams:

drams: boyl them in White-wine, let them be ſtrained, and to a pint of the Liquor, add Spirit of Wine, two ounces: mingle it.

When the Part hath begun to Mortifie, Scarifie, continue the uſe of the above preſcribed Medicines.

Cure of a Gangrene from External heat, or hindred Perſpiration.

Let the Cauſe of the Diſeaſe be removed if poſſible; which if it happens from *External Ligature, Heat or too Aſtringent Medicines*; let them be forthwith removed from the part affected, and let it be waſhed, being firſt Scarified, with the following Decoction.

Take the Water of Endive, Night-ſhade, of each ſix ounces; of Sorrel-water, eight ounces, Vinegar, half a pint, Salt, an ounce and half; *Scordium*, a handful, Lupines, half an ounce: Mix them, and boyl them to the conſumption of the third part.

Then let the Chirurgion uſe *Ung. Ægyptiacum*, or any other of the above preſcribed Medicines.

Cure of a gangrene from the defect of Nutriment.

Let the Patient uſe nouriſhing Aliments; all ſtrong External, or Internal dryers, hurt; Friction of the Part with moderately hot Medicines, as with Oyl of Sweet Almonds, Olives, Earthworms, Scorpions, Vipers, Mans-fat, Bears, or Hens, is good. Scarifie if neceſſity require. Diſcuſſives here are very injurious.

Cure of a Gangrene from a venomous Humor.

If the Malignant Humor be in the Body it ſelf, Sudorifick, Cooling, and Cordial Medicines are beſt, for *Purging* and *Bleeding*, I have ſeen them oftner to do hurt, than good.

Outwardly, Defensives are useless, but Cupping-glasses, Leeches, and attractive Medicines are necessary.

But if the *Malignant Humor come from an external Cause*, the surest remedy is *an actual Cautery*, lest the Malignity spread it self, which is to be used the very first time; and also to put a further stop, apply a Defensive to the sound Part, two fingers breadth distance from the wounded Part, so also it will put a stop to the Flux of Humors, or else all the hope consists in *Leeches Cupping-glasses, Attractive Medicines*, and others set down above.

Cure of a Gangrene sprung from the Scurvy.

Internal Remedies we commit to the Physitian; *Externally*, these are commended.

Take Seeds of Broom, Roman Nettle, Rue, of each a dram; Tops of Wormwood, two drams; Gum, *Galbanum*, *Ammoniacum*, dissolv'd in Vinegar, of each six drams; Oyl of Juniper, three drams; Wax, as much as is sufficient to make it into a Plaister.

Or,

Take Oyl of Earth-worms, Bayes, Rue, of each two drams; Castor, a dram; Spirit of Wine, three drams: Make it into a Linament.

Or,

Take the Raspings of *Guaiacum*, Sassafras, of each an ounce; Root of Angelica, Celandines the greater, Tamarisk-bark, of each six drams; Leaves of Scurvygrass, Water-cresses, of each a handful; Fennel-seeds, an ounce; Spirit of Wine, a pint and half: Infuse them a night, then distil them in *Balneo Mariæ*.

Foment the part affected with this, and scarifie, if there be occasion; and let the Chirurgeon proceed according to Art.

Where

Where a Gangrene hath degenerated into a *Sphacelus*, especially in the Joynts, let the Part be amputated; concerning which, look in the First Part.

CHAP. XV.

Of a Paronychia.

PAnaritium, *or* Paronychia, *is a Tumor very painful, in the end of the Finger, from a sharp Malignant Humor, corroding the Tendons, Nerves, Periostium, and Bone it self.*

Cause is a *sharp humor*, proceeding from Choler or Serum.

Signs are, an intolerable pain about the Nail, tormenting the Patient day and night; an Inflammation, oftentimes extending over the whole Arm: A Fever for the most part, and sometimes *Delirium*, *Prognostick.* By how much the Humor is the more malignant, the greater Symptoms it raiseth, corrupting sometimes the Bone, the Finger, the whole Hand, and sometimes from extream pain, it occasions the death of the Patient.

Cure. Foment the Finger a while in this Decoction.

Take Flowers of Camomile, Melilot, Elder, of each half a handful; Linseed and Fenugreek, each two drams: Boil them in Milk.

Or, let this Cataplasm be applied.

Take Flowers of Dill, Elder, Leaves of Henbane, of each a handful; Poppy-seeds and Linseed, of each three drams; Marsh-mallow-Powder, an ounce and *half.*

Boil them in Milk, to the consistence of a Cataplasm.

Then make *Incisions* upon the Part affected, according to the length of the Finger, and for the most part there appears one or more red spots, containing a sharp Matter, but little in quantity, which is the cause of the Disease.

After the Apertion of the Tumor, at the first dressing, apply to the Finger Treacle dissolved in Spirit of Wine; and a Defensive to the whole Hand; so in a day or two, the Cure will be perfected.

But if this Part should be gangren'd or Sphacelated, either by the neglect of Patient or Chirurgeon, let it be taken off: Except you will commit the business to Nature, which oftentimes separates, and throws out this Bone. A great Inflammation sometimes here produceth a *Fleshy Excrescency*, occult and senseless; this is removed by Knife, or exeding Medicines: Then cure according to Art.

But if being too late call'd, you find a great *Collection of Humors*, let Discussives or Suppuratives be applied; then the Tumor being either broke or opened, take great care, lest the Tendons (which do very easily) putrifie, or incline to putrefaction: Separation is here necessary, whether it be by Medicines, or a cutting Instrument: Repellents in this case, greatly hurtful.

CHAP.

CHAP. XVI.

Of an Aneurisme.

A Neurisma *is a Tumor besides Nature, from a Rupture of an Artery, continually beating, easily yielding to the Fingers, and as suddenly returning.*

Cause] All Arteries, except those that are dispersed through the Brain and upper parts, consist of a double Tunicle; the inmost of which being either corroded or broke, the External may be extended so much (without a Rupture of it, whatsoever others say) as to cause an *Aneurism*: Nevertheless, where the Tumor is of the bigness of ones Fist, it cannot be but that the external also must be either corroded or broke. Anatomy doth confirm this Opinion, which the Studious in the Art of Chirurgery may enquire into.

This Tumor also may be caused, where an Artery be divided, so that the External Tunicle united to the Muscles; the Internal, by reason of the continual pulsation, remains open.

Signs.] A swelling increasing by degrees, of the same colour as the skin; a continual Pulsation: If the Tumor be little, it easily yields to the Fingers, so that it altogether disappears, but suddenly returns again; but if great, not so easily yielding to the touch, nor so strong a Pulsation: but there is a noise observed, as of boiling Water; yet in the Head and Jaw, I have found after death an *Aneurism*, which while the man was alive,

there could be no Pulse perceived: In the hard Parts is greater circumspection to be used, than in the soft and fleshy.

Prognostick.] It is difficultly Cured; if great, not at all, except with the taking off the Member, for the most part it is a long Disease, although I have seen it kill, without any other accidental Cause, within two years. If Incision be made, Death suddenly follows.

Cure.] In the beginning there may be some hopes. *Astringents* and *Repellents*, and convenient Ligatures, by which we do not seldom administer something of Remedy to the Patient; as also the applying a piece of Lead straightly bound on, have sometimes Cured little *Aneurisms*.

But where the Tumor is increased, there are some would have the Skin divided, and the Artery tied both above and below, and cut out the middle with the Tumor, and loosen not the Ligatures till the Wound is perfectly cured, and there is no fear of an Hemorrage; but this Operation is dangerous, painful and troublesome, and oftentimes of little benefit. But to preserve Life, I would take off the Member.

CHAP. XVII.

Of Opthalmia.

OPthalmia *is an Inflammation of the Membranes of the Eye from Blood, with redness, pain and shedding of tears.*

Differences.

Difference.] A light Inflammation, and which depends from External Causes, is called a Bastard-*Opthalmia*, *Taraxis* or *Epiphora*; but a great Inflammation accompanied with pain and tears, a true *Opthalmia*. And if it be so great, that the Eye-lids are also inflamed, and as it were, turned inward, 'tis called *Chemosis*.

Causes are two. 1. Internal, as Blood, oft-times mixt with *Serum* or Choler; seldom with Phlegm or Melancholy. 2. External, as Smoke, Dust, &c.

Signs vary according to the variety of Causes; If it proceed from too great a quantity of *Blood*, the Face looks red, and the Vessels of the Eyes are extended: If either from more of *Serum* or Choler, the redness of the Face is less, but the Tears are more sharp, and the pain greater; if from more of *Phlegm*, the reddish pain, heat and acrimony of Tears are more remiss, and the Eye-lids at night are as it were glewed together: If from any thing of *Melancholy*, there are but few Tears, and the Eye-lids are not closed together, the Inflammation is not great, but stubborn.

Prognostick.] An *Opthalmia* is slower cured in Children, then in Old people. Continual pain menaceth Blindness, by how much greater the Inflammation is, so much the more dangerous it is.

Cure.] The Diet must be the same as in a *Phlegmon*; all sharp things are carefully to be avoided; as, Garlick, Radishes, Mustard, &c. little or no Suppers profit: *Purging*, the use of Glisters, Bleeding ought to be oft-times reiterated; as also *Cupping Glasses*, *Leeches*, *Blisters*; sometimes also *Seatons*, *Issues*, and *Arteriotomy* it self, which is not to be done by any but an expert Chirurgeon;

Snee-

Sneezing is hurtful; *Provoking of Sweat* is sometimes necessary, sometimes not; which the Physitian must distinguish; *Diuretiks* are of great use, provided they are not too hot.

External Remedies vary according to the variety of causes; if from *Smoke* or *Fire*, let them be extinguished.

If from *Dust*, or *any thing got into the Eyes*, 'tis to be taken forth, which is often performed by blowing, or by the spurting in of Rose-water.

If from the *inversion* of the *Eye-lids*; the hairs are to be cut off, or wholly to be pull'd out.

If the *Eye-lids are glew'd together*, they are to be separated, with Butter, Beef or Cream, the Rheum is gently to be wiped; and let the Patient have a care, lest by the rubbing of his Eyes, he increaseth his Disease.

Fat things are here hurtful: *Repellent Medicines*, except in the very beginning, are not to be used, or in a very slight *Opthalmia*.

Medicines good for the Eyes.

Roots of Valerian, *Solomons*-Seal, Orrise, Vervain, Herbs, Betony, Celandine the great, Eyebright, Fennel, Fumitory, Plantain: Flowers, of Roses, Violets; Aniseeds, Quince-seeds, Linseeds: Pippins, boil'd or rotten; Camphire, Mucilage of Linseeds, Tragacanth, Fresh Veal; White of Eggs; all sorts of Milk, especially Womans; Tutty, white and green Vitriol; *Saccharum Saturni*; Glass of *Antimony*; White Troches of *Rhasis*; fresh Cheese not salted; *Ung. Saturni.*

A Water for the Eyes.

Take Waters of Eyebright and Celandine the greater, of each an ounce and half; White-wine, six drams; Glass of Antimony, eight grains; prepared

pired Tutty, fifteen grains; White Vitriol, two grains; Sugar-Candy, two drams; Camphire, four grains: Make it into a *Collyrium*.

Another excellent one.

Take Wheat, three handfuls; Bruised Ginger, three drams; Common Salt, a handful and half; White Wine, Water of Roses, of Fennel, Plantain, of each ten ounces: Infuse them in a Copper-Vessel the space of forty dayes, strain them, and reserve the Liquor for your use.

Another very much approved.

Take a whole Egg, boil it hard, then the shell and Yolk being taken away, put into the Cavity, Sugar of *Saturn*, six grains; Camphire, two grains; White Vitriol, three grains; Honey of Roses, half an ounce; then press it very hard, and let the prest-out Liquor be dropt into the Eyes twice or thrice a day.

Another, second to none.

Take Waters of Fennel and Eyebright, of each a pint; Common Salt, six drams; prepared Tutty, white Vitriol, of each half an ounce: Let them boil a little, and reserve for use.

Let not the great quantity of Vitriol affright any; it causeth only a slight pain, which suddenly vanisheth; but 'tis of so great virtue, that it cannot sufficiently be extoll'd; but its use will prove it true.

A Powder for the Eyes.

Take Dulcified Vitriol, half a dram; prepared Tutty, fifteen grains; Sugar-candy, a scruple: Make it into a fine Powder.

Unctious Medicines seldom are applied to the Eyes, or else this Oyntment is much commended.

Take

Take Verdigreece, twelve grains; Camphire; *Lapis Calaminaris*, of each half an ounce; prepared Tutty, half a dram; fresh Butter washed in Rose-water, two ounces: Make it into an Ointment.

An Anodine Cataplasm.

Take Camomile, and Melilot Flowers, of each a pugil, roasted Apples, two ounces, Fenugreek-seed, an ounce; Crums of Brown Bread, three ounces; two yolks of Eggs, Saffron, half a dram; Boil them in Cows-milk, to the consistence of a Poultice.

An Anodine Collyrium.

Take the Juice of Houseleek, two drams; White of Eggs, half an ounce; Woman's Milk, two ounces; Rose-water, an ounce; white Troches of *Rhasis*, one scruple; *Opium*, three grains: Mix them.

Another, which I have often found excellent in the greatest pain.

Take Gum Tragacanth, two drams; Mucilage of the Seeds of Flea-wort, three drams; Rose-water, and Plantain-water, of each as much as suffices: Make it into a *Collyrium* of an indifferent Consistence; and let it be instilled by drops into the Eyes, and Linnen Cloaths wet in it, outwardly applied.

CHAP.

CHAP. XVIII.

Of a Quinsey.

A Quinsey *is a Tumor of the Jaws, from Blood, hindring Deglutition and Respiration.*

Differences.] Tis divided into three species; the first is called *Cynanche*, when the Muscles of the *Larinx* are inflamed: the Symptomes here are very dangerous, although neither Internally nor Externally appear any Tumor; the Patient puts forth his Tongue like a tired Dog, to fetch his breath. Second is *Synanche*, when the Tumor shews it self within the Jaws; the Symptomes are likewise here great, but much less than in *Cynanche*. Third is, *Parasynanche*, when the Tumor appears more Externally than Internally; and in this the Symptomes are least of all.

Cause is *Blood*, for the most part mixt with *Serum* or Choler; seldom with Phlegm or Melancholy.

Signs of an approaching *Quinsey*, are, a stiffness of the Neck, swallowing and breathing somewhat hindred, an unusual heat and pain in the Jaws, especially when Quinsies are Epidemick.

Signs of a present are, a suffocating Asthma; swallowing hindred, which often increaseth to so great a heighth, that Drink taken in at the Mouth, comes forth again through the Nostrils, Pain, Redness, Tumor for the most part, also a continual Fever; the Tongue likewise swell'd, and the Voice altered.

Prog-

Prognostick.] A perfect Quinsie never wants danger, but sometimes suffocates the Patient the first day, generally before the fourth: If the Matter be not suddenly concocted and thrown forth, it is desperate; if the *Vertebra's* be laxated, death is near at hand; foaming at mouth is a sign of present death; if the Patient be taken with a pain of the Head, a *Delirium*, raving and death it self suddenly follows.

Cure.] *Bleeding* in this case effects much, both by taking away of the Inflammation, and by hindering its increase, which is to be performed at first sight, therefore let the Median or Cephalick Vein of the side most affected be opened, though in Women with Child, then the Vein under the Tongue: *Cupping Glasses* with *Scarification* may also be applied to the Neck about the second *Vertebra*, Shoulders and Breast; *Leeches*, *Cauteries* and *Blisters* do much good, especially in them that are subject to Quinsie: In the mean time, if the Patient can swallow, let some purging Medicines be given him; if not, let a Glister be cast in, with Bleeding, which must be as often reiterated as occasion requires.

Gargarisms then, and other External Medicines are to be used; which in the beginning are to be more Repelling, afterwards more Discussing; for Experience, and best Authors have taught, 1. Repellents never are to be used alone, except in the beginning, and in a light Quinsie. 2. That Repellents ought alwayes to be mixt with Resolvents; for Repellents destroy the heat of the part; Resolvents cause Fluxion.

Medicines

Medicines in a Quinsie.

Roots of Marsh-mallows, Liquoras, Herbs, Comfrey, Myrtle, Prunella, Dandelion, Scabious, Plantain, Housleek the greater, Sage, Alehoof, Violets, Flowers of *Balaustians*, Red Roses, Saffron, the four cold Seeds, Poppy, the Rinds and Juyce of Pomegranates, Figs, *Album Graecum*, Burnt-Swallows, Burnt-Allom, Swallows Nests, Syrups of Maidenhair, Violets, Purslane, Jujubies, Scabious, Lungwort, Honey of Roses, *Rob. Diamori.*

A Repellent Gargarism.

Take Flowers of Red Roses, Balaustians, of each two pugils; Pomegranate-Rinds, half an ounce; Oak-leaves, a handful; Burnt-Allom, half a dram: Boil them in Smith's water, and add to a pint of the Liquor, two ounces of *Rob. Diamori*: Mix them.

Another very convenient in the beginning of the Disease.

Take leaves of Dandelion, two handfuls; Alehoof, Violets, of each half an handful; boil them in Barley-water, and to a pint of the strained Liquor, add of common Honey of Roses, and strained, of each an ounce and half; Spirit of Vitriol, 15 drops: Mix them.

A Repellent, and somewhat Discussive Gargarism.

Take Liquoras, Pomegranate-Rinds, of each two

two drams, Balaustia Flowers, a pugil; *Jujubies*, N° xij. Figs, N° iij. Raisons, six drams; boil them in Barley-water. To a pint of the Decoction, add of common and strained Honey of Roses, Syrup of Maidenhair, of each an ounce: Mix them.

A Gargarism greatly Repelling, but strongly Discussing.

Take the Roots of Dwarf-Elder, Orrise, of each two drams, Flowers of Camomil, a pugil; Red Roses, Hyssop, of each two pugils, Dates, N° iij. Figs, N° vj. Fenugreek-seeds, two drams; *Album Græcum*, one dram: Boil them in Turnep-Broth. Add to it Syrup of Maidenhair, and *Jujubies*, of each an ounce: Mix them.

If the pain be very great, boil them in new Milk, chiefly in Goats.

External Medicines for a Quinsey.

Oyl of Nuts, White Lillies, Almonds, Camomile, Dill, Capons-grease, Hogs-grease, Oyntment of Marsh-mallows, Plaister of *Mucilages*, Dogs and Pigeons-Dung, Swallows Nests.

Take Roots of Marsh-mallows, White Lillies, of each an ounce; one Swallows Nest, Figs, Dates, of each N° iij. *Album Græcum*, half an ounce Boil'd Onions, half an ounce: Boil them in Barley-water, and to a pint of the strained Liquor, add of Wheat-meal and the Powder of Linseed, of each an ounce; Fenugreek and Marsh-mallows powdred, of each two ounces and a half; Yolks of two Eggs, Eastern Saffron, two drams; Oyl of Camo-

Camomile, two ounces and a half: Make it into a Cataplaſm.

Take Juice of Onions, two ounces; Oyl of White Lillies, Orriſe, of each an ounce and half; boil them a little, adding to them of Swallows-Neſt, a dram; Pitch and Wax, as much as ſufficeth to make it into a Plaiſter.

But if the Tumor tends to Suppuration, 'tis to be forwarded, and then to be opened either by Medicines or Launcet.

A Suppurating Cataplaſm.

Take Roots of Briony, white Lillies, Orriſe, of each three drams; Leaves of Pellitory of the wall, a handful; Camomile-Flowers, half a handful; Onions, an ounce; Figs, N° xij. Boil them and bruiſe them, adding of the Powder of Fenugreek-ſeed and Linſeed, of each two ounces; Hens-greaſe, an ounce; Oyl of Camomile, two ounces: Mix them.

A Suppurating Gargariſm.

Take Roots of white Lillies and Liquoras, of each three drams; Onions, half an ounce; Raiſons ſton'd, an ounce; Figs, N° vj. Linſeed and Fenugreek, of each two drams; Leaves of Mallows and Coleworts, of each half a handful; boil them in Barly-water, and to a pint of the ſtrained Liquor, add of Syrup of Maidenhair, two ounces: Mix them.

And to make the Abſceſs break, add to this Gargariſm.

Take Muſtard ſeed, two drams; Roots of Pellitory of Spain powdered, one dram; Saf-

fron, a scruple; Oximel simple, an ounce: Mix them.

But if it doth not forthwith break by these Medicines, 'tis to be opened by a Launcet, or some other Instrument; afterwards using Emollient Gargarisms, and somewhat abstersive.

The End of the first Book of the second Part.

BAR-

BARBETTY'S CHIRURGERY.

The Second Book of the Second Part of CHIRURGERY.

Of Wounds.

CHAP. I.

Of the Nature, Differences, Causes, and Signs of Wounds.

A Wound is a solution of continuity in the soft parts of the Body, from a hard Instrument, causing an abolition or imminution of action.

Differences are taken, 1. From the *Form*; some are long, others oblique; some are little, others great; some are deep, others superficial. 2. From the *wounded Part*, as, the Head, Lungs, Heart, Stomach, Liver, Spleen, Guts, Nerve, Tendon, Vein or Muscle; sometimes the Skin is only penetrated, then 'tis a simple Wound; sometimes a part of the flesh is

taken away, and then 'tis call'd a compound or hollow wound. 3. From the Causes, which shall presently be set down; sometimes a wound happens to be poisoned, and to have many Symptoms joyned with it.

Causes are five-fold, *viz.* 1. All things that *cut*, as a Knife, Sword, Glass. 2. All things that *prick*; as Needles, Arrows, Teeth. 3. Which *perforate*, as hot Iron, Bullets. 4. Which *break*; as a Fall, Stroke, or the carrying or lifting of any great Burdens. 5. All things which *contuse*; as a Stone, Stick, *&c.*

Signs.] External Wounds are of themselves manifest enough, but those of the Internal parts, are not always so easily judged of; these therefore are to be known by Anatomy; 1. What is the situation of each part. 2. What the use. 3. The Symptoms are to be considered. 4. The Quality of those things are to be noted, that Nature ejected through the Wound: The other Signs you shall have in their proper places.

Prognosticks.] To know the events of Wounds, especially to predict which are Mortal, which not, is a thing absolutely necessary for a Surgeon: For from this judgment oft-times depends the Life of unfortunate man.

A mortal Wound is that, which in the space of few hours or dayes, of necessity causes Death, and cannot by any Art be cured.

For those that in themselves are curable, yet by reason of ill Symptoms, or through the neglect either of the Patient or Chirurgeon, do occasion Death, ought not to be accounted mortal Wounds: Incurable Wounds themselves are not to be called mortal, if they are not the cause of Death suddenly

to the Patient; but that he not only lives many weeks, but oftentimes many years after.

1. Among the wounds that are mortal, are to be accounted the wounds of the Brain, but not all of them; for experience hath taught us, that part of the Brain hath been taken forth, and the Life preserved, though the Understanding loſt.

Therefore thoſe wounds of the Brain that be abſolutely mortal, are, 1. *When beſides the Brains, a Nerve is alſo wounded.* 2. *When Blood, or ſome other Humor obſtructs the beginning of the Nerves:* 3. *When after a few dayes the concrete and putrified Blood produceth a Fever,* Delirium, *and Death it ſelf.*

By concreted Blood, I underſtand not that which lies between the *Dura Mater* and the Skull; for that is to be taken forth by the Trepan, and the Patient this way may be preſerved; but that which is included between the *Dura* and *Pia Mater,* or between the *Pia* and the Brain: Although ſometimes, that which is detained between both Membranes, by the dividing of the *Dura,* may be taken forth, and ſo the Patient preſerved.

2. The Wounds of the Spinal Marrow are alſo mortal, which happens in the Neck, or nearer to the Head; but thoſe which happen lower, as about the *Os Sacrum,* are of leſſer danger.

3. The Wounds of the Lungs are mortal, if great and deep, where the great Veſſels, or the Brances of the *Aſpera Arteria* are hurt: Where the Veſſels are divided, there follows a great effuſion of Blood; where the Brances of the *Aſpera Arteria,* the Breath comes forth more through the Wound, than the Mouth.

4. Wounds of the heart are alwayes mortal;

for though one or two wounded in the heart, have lived, two, three, or four dayes, it was never found yet, that ever any escaped.

5. The Wound of the Wind-pipe may be cured, if the Membranes only behind, to which the Cartilaginous Rings are joyned, be hurt; but if the Rings themselves are wounded, there's no cure to be expected; yet sometimes those wounds being a lingring death, so that I have seen one so wounded, live eighteen weeks before he died.

6. Wounds of the *Diaphragma*, those that are inflicted in the fleshy part of it, are curable; but those that are in the Nervous part, though these alwayes occasion not sudden death, yet 'tis impossible ever to cure them.

7. Wounds of the *Stomach* are sometimes cured; those chiefly being mortal, that happen in the upper Orifice, or in Nerves that are distributed over the Stomach.

8. The wounds of the *Small Guts* are seldom cured, but the wounds of the *great Guts* much oftner, especially if they are not great.

9. Wounds of the *Liver* and *Spleen* are mortal, where the Vessels themselves are wounded; where not, they may be cured.

10. Wounds of the *Kidneys* are not mortal; if the wound penetrate into the Cavity it self, for the most part an Ulcer follows, which consomes the whole Kidney, yet the Patient may continue many years: If the *Parenchyma* only be wounded, sometimes, through difficulty, it may be cured.

11. Wounds of the *Bladder* are seldom so perfectly cured, but that for the most part there remains a Fistula; but those that are made at the neck of the Bladder, are daily cured.

12.

12. Wounds of the great *Veins* and *Arteries* are often mortal; but every Surgeon understands not rightly to bind up such Wounds, therefore the cause of death is not alwayes to be cast upon the guilty.

13. Wounds of the *great Nerves* are for the most part incurable, and sometimes mortal.

14. Wounds from *poisoned Instruments* or *Creatures*, generally are mortal.

Wounds of Nerves, Veins, Tendons and Membranes, are more difficultly, and longer of Cure, than those of the fleshy parts

A wound from a pricking Instrument, is of less danger, than from a bruising.

A Nerve, Vein or Artery, if wholly divided, are less dangerous, than if they were but in part.

A great Inflammation coming upon a great Wound, is of no great danger, except it continue too long; but a great Inflammation falling upon a little Wound, is an ill sign.

The Inflammation for the most part vanisheth by the fifth day; therefore if the Wound then appear white, livid or black, 'tis not void of danger.

A Fever, Vomiting and Convulsion, are dangerous; but a Fever and Vomiting of less danger than a Convulsion.

CHAP. II.

Of the Cure of Wounds in general.

HEre are required four *Intentions*: 1. *To preserve the strength and native heat of the wounded Part.* 2. *To remove the Symptoms.* 3. *To endeavour that nothing remains, or be left behind in the Wound.* 4. *That the gaping lips of the Wound be joyned together; and being so joyned, be kept.*

CHAP. III.

Of the preservation of the strength and Native heat in the wounded Part.

CHirurgery removes the impediments of Cure, but Nature her self cures the Disease; which it will scarce effect, where the Native heat is weak, or the Blood vitiated, or where it flows in too great or too little quantity to the Wound: in flowing in too great quantity, it produceth an Inflammation, Pain, Putrefaction, and many other Symptoms; where, in too little quantity, the Wound is robbed of its Natural Balsam, necessary to consolidate it.

The natural strength and native heat is preserved by a convenient Diet, fitted to the temperament of mans Body in general, and in particular, to the Part affected. Of the Diet of the Sanguine, Cho-

Cholerick, Phlegmatick and Melancholick, we have treated of before, when we spoke concerning a *Phlegmon*, *Erysipelas*, *Oedema*, *Scirrhus*.

Then *care is to be had of the Blood*, seeing it affords assistance to the matter, and serves to unite the wound. *Where it is vitiated*, it requires purging: But *if it flow in too great quantity*, Intercipients, Repellents, Revellents and Derivation must be used.

If it flow in too small quantity, Aliments that nourish, are convenient, as also Medicines that strengthen, and that move Sweat: Outwardly, gentle Frictions and Embrocations moderately hot.

Then the Cure is to be perfected by External Medicines; which shall be declared in the following, when we speak of the removal of the Symptoms, and the Cure of Wounds themselves.

CHAP. IV.

Of the Symptoms of Wounds.

THe chief *Symptoms* of *Wounds* are, 1. *A Fever*, whose Cure we commend to the Physitian. 2. *A Phlegmon* or *Inflammation*. 3. *An Erysipelas*. Of the Cure of both which, look in the second and third Chapter of the first Book. 4. *Hemorrage*, which not only impedes the Cure, but also deprives of strength and life it self; therefore great care is to be taken that it be stopped as soon as possible, which in the greater Vessels, especially the Arteries, is very hard to do; therefore those wounds are for the most part mortal: for Medicines that stop Blood are too weak, and hard Liga-

Ligatures occasion a *Gangrene*; the surest way therefore in my opinion, is an actual Cautery; the lesser Vessels may and will close, Some close the Wound of the Vessels with their Fingers, and so hold them there while the Blood is coagulated, and the Flux stopt; but this Operation seldom succeeds: besides the long holding of the Finger in the Wound is hurtful.

Therefore let the Wound together with the Vessels be forthwith closed by the Fingers, but if you cannot come to do this, outwardly make a compress upon the Vessel; which done, wipe away the Blood with a Spunge, then sprinkle some restringent Powder; but not over the whole Wound (which is used to be done by the ignorant) but only upon the the Vessels; then bind up the Wound, continuing the use of the Medicines stopping Bleeding, while there appears no longer any Blood; not neglecting in the mean time, Generals, *viz.* Scarification and Bleeding, *&c.*

Medicines that stop a Flux of Blood.

Roots of Bistort, Cinquefoil, Tormentil, Comfrey the greater, Red Saunders, *Lignum Lentisci*, Pomegranate-rinds, Mastick, Talk, *Acacia*, Dragons-Blood, Amber, Sarcocols, Frankincense; the hairs of a Hare, *Os sepiæ*, Burnt-Crabs, Whites of Eggs, Mummy, Cobwebs, red Coral, Chalk, Bloodstone, Bole-Armenick, Aloes succotrine, Frogs dried and powdered, crude Vitriol, burnt Vitriol.

Take fine Meal, three ounces; Dragons-Blood, Frankincense, of each an ounce and half; Bole, Scaled Earth, of each two drams, Talk, six drams;

drams; dried Frogs, an ounce; Hares hair cut very small, a dram and a half; Whites of Eggs dried in the Sun, and powdered, half an ounce; New Spunges torrified, an ounce; white Vitriol, a dram: Mix them, and make them into a fine Powder.

5. *Pain*; which must of necessity be eased, because it creates watchings, and dejects the Spirits, and is cause of the Flux of Humors to the Party affected, and of Inflammation, Fever and Gangrene; but the Causes are diligently to be considered: For if either *Medicines that are sharp, or too hot*, occasion it, they are presently to be altered: 'Tis better to confess an Error, than pertinaciously to persevere in it.

If any foreign Body remains in the Wound, it must be drawn forth.

If pain comes from the choaking in of the Matter, you must allow it a free passage.

If an Inflammation be the cause of it, its Remedies are set down in the second Chapter of the first Book: You must apply to the Wound those things which ease pain, and are anodine; as Oyl of Roses, Linseed, Camomile, Worms, sweet Almonds, Poppies, *&c.*

Take Oyl of Roses, of Poppy-seeds, of Camomile, of each an ounce; the White of an Egg, Saffron, a scruple: Mix them.

But if the pain cease not with these or the like Medicines, it is a sign that some Nerve is wounded, or affected by consent: The Cure shall be set down in the following.

6. *Convulsion* or *Spasm*; this shews the Malignity of the Humor, or the ill constitution of the Nerves, neither of them promising any good:

Here

Here muſt be uſed both Internal and External Medicines appropriated to the Diſeaſe; the Internal, by reaſon of the diverſity of cauſes, we commend to the Phyſitian.

External Medicines for a Convulſion.

Balſam of *Peru*, the fat of Geeſe, Caſtor, Foxes, Rams, Mans; Horſe-dung, Oyls of Juniper, Lavender, *Ol. Philoſophorum*, Amber, Turpentine, Rue, Marjoram, Worms, Caſtor, Orriſe, Bayes, *Petroleum*; Ointments of *Agrippa*, *Martiatum*, *Ung. Nervorum*, Spirit of Wine.

Take Oyl of Snails, Worms, Seſamin, of each an ounce; of the Greaſe of Rams and Foxes, of each half an ounce; freſh Butter, ſix drams; Spirit of Wine, three ounces: Let them boil till the Spirit be conſumed; then add Oyl of Spike diſtilled, Roſemary, Amber, of each two drams: Mix it into an Ointment.

Againſt a Convulſion there cannot a better Remedy be invented than diſtilled Oyl of Lavender, ſome few drops being given in ſome convenient Liquor; and annointing well the convulſed part.

7. *Hyperſarcoſis*, or too great increaſe of fleſh; which if it happens from *abundance of Blood*, the fleſh is ſolid, and otherwiſe well conditioned; but if from the too weak quality of drying Medicines, it is ſpungy; of the ſame nature, as when the Bone underneath is rotten. In the *former caſe*, Bleeding is convenient, and ſometimes faſting, and the uſe of ſtrong drying Medicines: In the *latter*, the Medicines muſt be very ſtrongly drying that are applied: Deterſive and Corroding Remedies are here good.

Medicines

Medicines against too great increase of Flesh.

Burnt Spunges, Burnt Alom, Galls, Aloes, the Bark of Frankincense, Tutty, Verdigrease, burnt Vitriol, *Precipitate*, Arsenick.

A green Corrosive Water.

Take crude Allom, Verdigreece, of each two drams; boil them in eighteeen ounces of white Wine, to a wasting of the fourth part, strain them, and add Camphire, a dram: Mix them.

A Powder very drying, and somewhat corroding.

Take Galls, Balaustians, burnt Alom, Frankincense, Myrrhe, of each a dram, Dragons Blood, Ceruse, Verdigreece, of each half a dram: make it into a Powder.

8. A *Gangrene* and *Sphacelus*, concerning which, look in the fourteenth Chapter of the first Book of the second Part of Chirurgery.

CHAP. V.

Of the drawing forth Extraneous Bodies out of the Wound.

NO Wound ought to be joyned together, as long as any Extraneous Body remains in it; for otherwise, after some little time it will break out into an Ulcer: The Blood, by which Nature unites the divided parts, if it flow in great quantity

tity to the wounded Part, and there coagulates, 'tis to be removed by expreſſion, ſucking it out, or by any other way; for ſo there will be leſs Matter generated, and the Symptoms fewer; but where an Hæmorrage is ſeated, all the Blood is not to be cleanſed away.

Where *Hairs* are about the Wound, they are to be removed.

If *Sand*, or any ſuch like thing remain within the Lips of the Wound, they are to be waſhed away with warm wine.

Broken Bones, if looſe, are to be taken away the firſt dreſſing, except an Hæmorrage hinder; but if they yet ſtick to the other Bones, then Natures endeavours are to be expected, and ſee whether they will be united again to the other Bone, or ſeparated from it.

If a *piece of Glaſs, Thorn, Arrow or Bullet*, or any like thing remains in the Wound, 'tis forthwith to be taken forth; but before the Chirurgeon goes about to draw them forth, let him conſider well, whether the Patient, that Extraneous Body being extracted, can live or not; leſt the Chirurgeon be thought to have occaſioned the Patient's death.

Of the manner of Extracting Bullets, we have treated before; and Arrows are to be drawn forth almoſt after the ſame manner; but they are not in uſe at this day among Chriſtian Soldiers: But if neither with the Hand nor Inſtruments, what remains in the wound can be drawn forth, then you muſt endeavour it with Medicines indued with an extractive quality.

Medicines

Medicines drawing forth Thorns, Bones, Bullets, &c.

Roots of Aron, Birthwort, Baſtard Dittany, Maſterwort, Polypody, Radiſhes, Valerian: Herbs, Southernwood, Pimpernel, Anemone, Red-Beet, Ditany: Gums, *Ammoniacum*, *Galbanum*, *Sagapenum*, *Succinum*, Pitch, the Brains and Greaſe of Hares, Crabs, a live Mouſe cut in two, Common Flies, Earth-worms, Burnt Frogs, Gooſe-dung, Load-ſtone, Leaven, Plaiſter of Opodeldoch.

Take Roots of round Birthwort, Ditany of *Crete*, of each a dram and an half; Roſin of the Pine, Colophony, of each ſix drams; yellow Amber, three drams; Gum *Ammoniacum*, Appoponax, of each an ounce; Pigeons-dung, three drams; Oyl of Bayes, half an ounce; Turpentine and Pitch, as much as to make it into a Plaiſter.

CHAP. VI.

Of the manner of joyning the Lips of Wounds together.

THe Lips of the Wound are joyned together, either by Ligature or Stitching. *Ligature* is convenient in wounds made according to the length of the Member, and not deep; let the Bandage be neither too hard, nor too looſe, and of that breadth that it may take in the whole wound.

wound. If it be a long wound, the Rowler must be three fingers broad, and laying the midst of it upon the wound, rowl one part upward and the other downward; which must neither be too loose, for then it will not keep the lips of the wound together; nor too straight, lest it cause an Inflammation: In the Winter the Rowlers must be of greater length than in the Summer: In great wounds, besides Rowlers, the Surgeon stands in need of Boulsters.

Stitching is performed either by *Needle* or *sticking Medicines*. It is requisite that the Chirurgeon never be without a Needle; for by it he frees his Patient from pain, the wound from inflammation, and himself from many inconveniencies; and the wound so requiring it, let him take a three-pointed Needle, with a waxed Thred, which let him pass through the skin, and sometimes also through the subjacent flesh, taking care that the Tendons be not prickt; and also that the stitches be not too few nor too many; but keeping such distance between each, that the skin may be drawn together, and the edges themselves joyned, leaving a little part for the putting in of a Tent, that may give passage to the superfluous Matter: These Tents are not necessary in little wounds; and in great, they must neither touch the Nerve or Tendon, nor reach to the bottom of the wound.

Where Ligature is not sufficient, and a stitch with a Needle not convenient, the sticking Plaister is very necessary; for so firmly doth this Plaister adhere to the wound, that neither the matter flowing out of the wound, nor the Blood, nor any other moisture loosens it: Oftentimes in this case is

used

used the *Stiptick Plaister* of *Crollius*, or *Paracelsus*, but this sticks more firmly.

Take Sarcocols, Bole, Mastick, Dragons-blood, Rosin of the Pine, of each a dram; Gum Tackmaback, a dram and an half; Naval-pitch, as much as sufficeth: Make it into a Plaister.

CHAP. VII.

Of Medicines necessary for the Curing of Wounds.

MEdicines necessary for the Cure of Wounds, are of three sorts: 1. *Digestives*, or moving matter. 2. *Sarcoticks*, or generating flesh. 3. *Epuloticks*, or inducing a Cicatrice.

Experience hath taught, that a wound may be cured oftentimes only by Digestive or Sarcotick Medicines; but this is better, and more certain, when they both are mixt together: In the fleshy parts, Digestives may alone serve; but in *Tendinous*, *Nervous*, *Membranous*, or other drier parts, *Sarcoticks* are convenient, either alone, or mixt with Digestives.

Digestives.

Common Oyl, Oyl of Roses, Mastick, fresh Butter and *May*-Butter, Gum Elemny, Turpentine, Frankincense, Mastick, the Flower of Wheat, Barley, Fenugreek, Yolks of Eggs, Honey.

Take Oyl of Olives, two ounces; yellow wax,

half an ounce, Frankincense, Mastick, of each a dram; the yolk of an Egg, fresh Butter, as much as is sufficient: Make it into an Ointment.

Sarcoticks.

Roots of Birthwort, Orrise, Sanicle, Comfrey the greater; Herbs, Betony, Centaury, Comfrey, St. *Johns* wort, Pimpinel, Plantain, Scabious, *Scordium*, Vervain; of Seeds, Beans, Fenugreek, Linseed, Barley; Frankincense, Aloes, Bole, sealed Earth, Colophony; Gums of Elemny, Pine, *Laudanum*, Mastick, Myrrhe, Dragons Blood, Sarcocols, Turpentine, Tragacanth; Wax, Honey, Mummy, *Cadmia*, Ceruse, *Lapis Calaminaris*, Litharge, Burnt Lead, Phomholix, *Lapis Hæmatitis*; Oyls of *St. Johns* wort, Bayes, Mastick, Myrrhe; Ointment, *Aureum*, *Basilicum*, *Fuscum*, of *Eolix Wurtz*, *Diapompholigos*; Plaisters, *Stipticum* of *Crollius* and *Paracelsus*, Oppodeldoch, of Betony, *Diasulphuris* of *Rulandus*; *Balsoms*, of *Peru*, of *Crollius*, of *Magatus*, *Aqua vitæ*; the fat of Geese, Foxes, Bears, Goats, Mans.

An Excellent Vulnerary Balsom.

Take Turpentine, half a pound; Gum *Galbanum*, Elemny, Ivy, Frankincense, Mastick, Myrrhe, of each an ounce; Aloes, Xyloaloes, Galanga, Cloves, Cinamon, Nutmegs, Cubebs, of each half an ounce: Infuse them four and twenty hours in a sufficient quantity of Spirit of Wine, distil them and preserve the Oyl for your use.

Another.

Take Oyl of Violets, eight ounces; of Bayes, an

an ounce; Oyl of Venice-Turpentine, half an ounce; of Spike distill'd, of Junipers, Verdigreece, of each a dram; Rosin of the Pine, Turpentine, Colophony, Mastick, of each half an ounce; white *Calcanthum*, a dram and half: Boil them a little, then strain them for your use.

Another.

Take Flower of Brimstone, three ounces; Mirtle, three drams; Camphire, one dram; Venice-Turpentine, five ounces: distil them, and preserve the Oyl for your use.

A Vulnerary Plaister.

Take the Roots of round Birthwort, and Comfrey the greater, of each half an ounce; *Mummy*, *Colophony*; Aloes, Mastick, Dragons-blood, Litharge of Gold, *Tutia*, of each two drams; Gum Elemne, two ounces; Turpentine, as much as sufficeth to make it into a Plaister.

Another most excellent both in old and new Wounds.

Take Gum *Galbanum*, ten drams; *Ammoniacum*, three ounces and an half; Oppoponax, an ounce; *Bdellium*, three ounces: Yellow Wax, twenty ounces; *Olebanum*, three ounces; Litharge of Gold, a pound; Myrrhe, ten drams; Verdigreece, Mastick, Roots of long Birthwort, of each an ounce; Loadstone, two ounces; prepared *Tutia*, *Lapis Calaminaris*, of each two drams; old oyl of Olive, a pint and half: Dissolve the Gums in Vinegar, and let the rest be powdered; mingle them according to Art, and boil them into the form of a Plaister.

Epulotick or drying Medicines.

Roots of Comfry, Tormentil; Herbs St. Johnswort, Plantain, Sanicle, Fluellin, Betony; Flowers of Balaustians, Red Roses; Saunders, Aloes, Myrrhe, Mastick, Sarcocols, *Lapis Calaminaris*, red Lead, Lead, Litharge, Tutty; Ointments of *Diapompholigos*, *Album Camphoratum*; Plaisters, *Gryssum de plumbo*, *Opodeldoch de Minio*, *Barbarum*.

Take Oyl of Roses, of unripe Olives, of each three ounces; of Myrtles, Ointment of Poplars, of each an ounce and half; Leaves of Plantain and Nightshade, of each an handful; let them steep together eight dayes: afterwards add to the strained Liquor, Wax, two ounces; mingle them over the fire, adding Litharge of Gold, three ounces; Cerusse, an ounce; Tutty, a dram; Burnt Lead, three drams; Burnt Brass, a dram and an half; Camphire, a dram: let them be rubbed in a Leaden Morter into the form of an Ointment.

Take Roots of Tormentil, Bistort, round Birthwort, burnt Egg-shels, Frankincense, Dragonsblood, of each half an ounce; *Lapis Calaminaris*, a dram; Litharge, two drams: Make it into a Powder.

Take *Ung. Pompholigos*, *Diapalma Grisei*, of each an ounce; Gum Elemne, two drams; *Saccharum Saturni*, half a dram; Wax, as much as sufficeth to make it into a Plaister.

I never knew any better Medicine, if applied in a fitting time, to bring to a Cicatrice, than an *Amalgama* of *Mercury*, of which, this is the description.

Take

Take two ounces of Lead, melt it, then add to it two ounces of Quickſilver, pour it upon Paper dried and powdered; it may be mixt with the Plaiſter of Lead or *Diapompholigos.*

To theſe External Remedies, we joyn alſo Internal Medicines, which have been obſerved to profit much at all times in the Cure of Wounds.

Vulneraries.

Wintergreen, Sanicle, Ladies Mantle, Comfry, Mugwort, Saxifrage, Tormentil, Agrimony, Milfoil, Horſe-tail, Hounds-tougue, Betony, Periwincle, Mouſe-ear, Golden-rod, Birthwort, Biſtort, Dittany, Centory the leſs, Gentian.

A Wound-Drink.

Take Roots of Comfrey the greater, half an ounce; of Wintergreen, two handfuls; of Sanicle, two pugils; Strawberries, Ladies-Mantle, Sage, of each an handful; boil them in red Wine, and to a pint and half of the ſtrained Liquor, add of the whiteſt Sugar, as much as is ſufficient. Doſe, three ounces.

Another very effectual, even when the Bone is hurt.

Take Roots of round Birthwort, an ounce and half; Sowbread, an ounce; Self-heal, Crane-bill, of each an handful; Savin, three drams; Mummy, two drams; Crabs-eyes, half an ounce; Galangal, two drams, powdred and cut: boil them in red Wine, and to three pints of the ſtrained Liquor, add of the Syrup of Comfrey, of *Fernelius*, four ounces; mingle them. Doſe, two ounces.

If any desires an Ointment, that many boast is able to cure the wound though the Patient be absent; this is its best description.

A Sympathetick Ointment.

Take Moss, two ounces; Mummy, half an ounce; Mans fat, two ounces; Mans blood, half an ounce; Oyl of Linseed, two drams; Oyl of Roses, Bole, of each an ounce: Mix it, and make an Ointment.

Some use only Vitriol calcin'd in the Sun, but whosoever shall use them without superstition, shall find many things attributed to Medicines, that are due to Nature; therefore 'tis safest to proceed in the beaten way.

CHAP. VIII.

Of Wounds of the Nerves.

IN Treating of the Wounds of the Nerves, we also comprehend those of the Tendons; because there is scarce any difference in the Cure it self.

'Tis to be *distinguished* here, where the Nerve or Tendon be divided, or only prick'd.

This Wound is known, 1. By considering *the wounded place*, and by Anatomy, which teacheth in what Members the Nerves are inserted; but the Tendons seeing they terminate near the Joynts, the Hands and Feet having many, if a Wound should be inflicted in these parts, who would not fear them to be so hurt, especially if it be with a transverse

verſe wound. 2. From *the great pain*, which cauſes Pulſation, Inflammation, Convulſion and *Delirium*, &c. except the Nerves be wholly tranſverſly divided, and then the Symptoms are altogether not ſo grievous.

Prognoſticks.] All the wounds of the Nerves are dangerous; a Puncture more dangerous than an Inciſion: Wounds of Tendons are leſs dangerous than Nerves. Convulſion is an ill ſign; Nerves and Tendons wounded, do eaſily putrefie.

Cure.] In all Wounds of Nerves or Tendons, ſeeing *pain* greatly moleſts, occaſioning many Symptoms, care is to be taken that it be *alleviated* as ſoon as poſſible. Outward cold things do here hugely injure, not only the Air, but Medicines themſelves: For experience hath taught us, that cold, moiſt and aſtringent Medicines do nought but hurt; therefore 'tis beſt to uſe Medicines moderately hot and drying, but void of any ſharpneſs. The *Wound* alſo is to be kept *open* till the Cure be abſolutely performed, that the Matter may flow freely forth, which if kept in, may increaſe the pain, and cauſe the putrefaction of the Nerve; which, if it ſhould happen, the corrupt Part is to be cut off, or removed by an actual Cautery.

Moreover it is to be obſerved, whether the Nerve or tendon lies bare or not; if bare, warm Medicines are convenient; but if *covered*, hotter Medicines are required; in the mean time, Purging and Bleeding are not to be neglected.

External Medicines in Wounds of the Nerves and Tendons.

Old Oyl of Olives, of Earth-worms, of Dill,

Rue, Rosemary, Costnary, White Lillies, *St. Johns*-wort, Castore, of Turpentine, Wax, Lavender, Balsom of *Peru*; Gums, *Elemi*, Tacamahac, *Caranna*, *Opobalsamum*, *Capayva*, Spirit of Wine.

Take *Venice*-Turpentine, Tears of the Fir-tree, of each an ounce; Gum, Tacamahac, half an ounce; of *Caranna*, two drams; Balsom of *Peru*, three drams; *Propoleos*, six drams; Oyl of *St. Johns*-wort, an ounce: Make it into an Ointment.

Oyl of Wax, *Lime-water*, *and the brown Ointment* of *Felix Wurtz*, are here excellent, if rightly used.

CHAP. IX.

Of Wounds by Gun-shot.

ALthough daily practice teaches us, that Bullets may be poisoned, yet they are not so of their own nature; for the pain in part, and the other Symptoms arise from the solution of the continuity and the contusion.

Here first the Bullet, and any thing else that accompanies it, is to be drawn forth, lest pain and inflammation coming upon it, may hinder; and care is to be had, that neither of them increase: and the contused Part, by the following Medicines be brought to suppuration.

Take Oyl of White Lillies, of Violets, of each two pints; two Puppies newly whelp'd; boil them till their Bones be almost dissolved, then add Oyl of Earth-worms, a pint; and boil them again, strain them, and add of Venice-Turpentine, three ounces;

ounces; Spirit of Wine, an ounce: Make it into a Liniment.

A Wound-Ointment.

Take Venice-Turpentine, an ounce; *Galbanum*, two drams; Calfs-marrow, half an ounce; Powder of Scorzonera and *Scordium*-Roots, of each two scruples; Oyl of St. *Johns*-wort, half an ounce; the Yolk of an Egg, Threacle, a dram: Make it into an Ointment.

Another more effectual.

Take Roots of Birthwort powdred, a scruple and an half; Mummy, Amber, Mastick, of each a dram; Turpentine, half an ounce; *Euphorbium*, a dram; *Ung. Ægyptiacum*, half an ounce; yolk of one Egg, Oyl of Elders, as much as is sufficient; Saffron, a Scruple; Make it into an Ointment.

Another more excellent than the former, and which likewise resists Putrefaction.

Take Tar, Turpentine, *Galbanum*, of each two ounces; Mastick, Frankincense, Nitre, *Sal Armoniack*, of each an ounce; Allom, half a dram; Verdigreece, white Vitriol, Camphire, Powder of Worms, of each a dram; Oyl of Linseed, Roses, of each two ounces; Oyl of Worms, and Turpentine, of each a dram: Molax them with a gentle fire; and make them into an Ointment.

If the Nerve hinder not, in a great putrefaction, there may be added some Præcipitated Mercury.

An

An Anodine Plaister.

Take Bean-meal, Crums of Brown Bread, of each two drams; let them be put in Milk, adding to them Oyl of Roses, Violets, of each an ounce; Yolks of Eggs, N° iij. Powder of Red Roses, *Scordium*, of each an ounce and half; Wax, as much as sufficeth: Make it into a Plaister.

An Anodine Cataplasm.

Take Roots of Marshmallows, Comfrey the greater, of each an ounce; Flowers of Camomil, Melilot, St. *Johns* wort, of each half a handful; Tops of Wormwood, two pugils; boil them in Milk, adding to them of the Meal of Marshmallow-roots and Beans, of each an ounce and an half: Make it into a Poultice.

If the Wound be quite through, a Tent must be put into both Orifices; for a Flamula is inconvenient and hurtful. At first, dressing it once a day, is sufficient; for in Wounds made by Gun-shot, there seldom appears any Matter before the third or fourth day; after this, the quantity or acrimony of the Matter will guide you best whether it is to be dresst once, twice or thrice a day.

CHAP. X.

Of Poysoned Wounds.

Poysoned Wounds are made sometimes by *Bullets*, *Arrows*, *Swords* and other *Instruments*; some-

sometimes by mad Beasts, as Dogs, Wolves, which hurt more by their venomous quality, than by wounding.

Signs are, vehement pain, a livid colour, suddenly becoming black, Symptoms more grievous than for the quality of the Wound; a heat over the whole Body, Trembling, *Delirium*, Fainting, *&c.*

Prognosticks. A poysoned Wound, though little, may bring Death, especially if near to the Heart, or any other Noble Part; or the Chirurgeon not call'd soon enough.

Cure consists chiefly in this, that *the Venom be drawn* forth by Cupping-glasses, attractive Medicines, Scarifications, or, which is safest, by an actual Cautery; but then it must not be in a Nervous Part, the Eschar to be forthwith removed, and the wound to be cured by degrees. Inwardly *Sudorificks* and *Cordials* profit. Bleeding and Purging hurt.

A Plaister that draws forth the Poyson out of the Wound, and corroborates the Part.

Take Boild Onions, three ounces; Treacle, half an ounce; Goats-dung, an ounce; Angelica-Roots in Powder, a dram and half; Oyl of Scorpions, an ounce and half; Honey and Wax, as much as is sufficient to make into a Plaister.

That corroborates the Part, extracts the Venom, produceth Matter, and incarns the Wound.

Take Gums, *Galbanum*, *Sagapenum*, Opopanax, *Assa Fœtida*, Mirrhe, Pepper, Brimstone, of each

each six drams; Pigeons and Ducks-dung, of each an ounce, Mummy, half an ounce, the great Comfrey-Roots powdered, three drams; Oyl of *St. Johns*-wort, as much as sufficeth to make it into a Plaister.

CHAP. XL

Of particular wounds.

IN Wounds of the Head, where the *Pericranium* is hurt, a stitch either by *Needle* or *Plaister*, is not convenient; fat things hurt, but comforting and drying profit much.

Take Mastick, Myrrhe, Aloes, Sarcocols, of each half a dram; Dragons-blood, two scruples; Bole a scruple; Venice-Turpentine, two ounces; Honey of Roses, a little: Make it into a Plaister.

Wounds of the *Brain* are accompanied with pain of the *Meninges*, and a great Flux of Blood, to which succeeds other Symptoms, and for the most part Death it self. Oyl of Roses applied warm, greatly easeth pain, and fresh Pigeons blood effects the same.

In an Hæmorrage.

Take Myrrhe, Aloes, Mastick, Dragons-blood, Rhubarb, Red Coral prepared, Hares-hair cut small, of each a dram: Make it into very a fine Powder.

Wounds of the *Face* are not to be stitcht, but always

always care is to be taken, that the Scars may not render it deformed.

In Wounds of the *Eyes*, you must abstain from all unctious things. The sound Eye is to be bound as well as the whole. The Head must be placed upright; if there be a *Flux of Blood*, the following things are convenient.

The Blood of Turtles, Pigeons, Hens, Mucilage, of the seeds of Fleawort, of Quinces, Tragacanth, Bloodstone, Ceruse, Tutty, Frankincense, Aloes; the white of an Egg, Water of Roses and Plantain, Decoction of Balaustians, Red Roses, Galls, *&c.*

Take white Troches of *Rasis*, prepared Tutty, Aloes Powdered, of each half a scruple; Red wine, an ounce; Red-Rose-water and Plantain, of each two ounces; Mucilage, of the Seeds of Fleawort, Tragacanth, of each a dram: Make a *Collyrium*.

In pain, Womans Milk fresh, is good; or the above-described *Collyrium*, adding to it half a scruple of *Opium*, and applying over it this Cataplasm.

Take of rotten Apples, two ounces; Flowers of Linseed, half an ounce; Mucilage, Seeds of Fleawort, two drams; crude *Opium*, half a dram; Yolks of Eggs, as much as is sufficient to make it into a Cataplasm.

A part of the *Nose* quite cut off, never unites again, although the Wound be but just made; but if it adheres still to the Body, 'tis to be stitched to it with a *Needle*.

Wounds of the *Ears* and *Lips* find greater benefit from the Needle than from Ligature.

Wounds of the *Lungs* require *comforting* and

drying

drying Medicines; ſharp being here very hurtful, though uſed in other Wounds.

Externally.

Take Roots of great Comfrey, Tormentil, Cloves, of each half an ounce; Flowers of Red Roſes, half a handful; Maſtick, Mirrhe, Aloes, of each a dram; boil them in Barley-water, and to half a pint of the ſtrained Liquor, add Syrup of Mirtles, common and ſtrained honey of Roſes, of each two ounces: Make it into a Liniment.

Internally.

Take Leaves of Fluellin, Strawberries, Sanicle, of each half a handful; Lung-wort, a handful; Roots of Angelica, two drams; Liquoras, a dram; Jujubes, N°. xv. Raiſons, half an ounce; boil them in Barley-water, and add to a pint and half of the ſtrained Liquor, Syrup of *Diacodion*, three ounces: Mix them, let them take four ounces of it three or four times a day.

Half a dram of *Sperma Ceti* taken every day, is excellent; but it weakens the Brain.

Wounds of the *Heart* are alwayes mortal, and thoſe that penetrate into the *left Ventricle*, kill ſuddenly; they ſeldom living ſo wounded, above ſix, twelve, or twenty hours, although there are examples produced for it. If wounded into the *right Ventricle*, it permits the Patient to live longer; but that which terminates in the *ſubſtance of the Heart*, grants yet longer time.

Wounds of the *Stomach* for the moſt part are left to be Cured by Nature, which here doth miracles; yet in a *Flux of Blood*, Bleeding is requiſite. In a Wound penetrating into the Cavity it ſelf,

ſelf, all the Tunicles being divided, the Wound of the Abdomen ought to be united by a Stitch, a little Orifice being left, through which a Tent is to be put, which muſt not enter the Wound of the Stomach, but only outwardly touch it; let it be armed with this, or the like.

Take Oyl of Maſtick, of Fir-tree, of each an ounce; Manna of Frankincenſe, two drams; Powder of the Roots of Tormentil, of the greater Comfrey, of each a dram, Saffron, a ſcruple; Earth-worms, half a dram; white Wine, two ounces; boil them to the conſumption of the wine, and make a Liniment.

Take Turpentine, half an ounce; Yolk of an Egg, Oyl of *St. Johns* wort, an ounce: Mix it, and make a Liniment.

Wounds of the *Small Guts*, ſometimes, though ſeldom, may be cured (this I can prove by a notable example) Thoſe of the *Great Guts* are more eaſie. Where the *Small Guts* are hurt, the Chyle, and ſometimes the Meat & Drink comes forth through the Wound, there is great pain, with a Fever and Nauſeouſneſs. Where the *Great Guts*, the Excrements come out at the Wound, or at leaſt the ſent; the Body is bound; the Wound is forthwith to be ſtitcht together, and the Gut to be reſtored into its natural place, well cleanſed with warm water, and this following Powder ſprinkled upon it.

Take Aloes, Maſtick, Frankincenſe, Mummy, Dragons-blood, of each a dram: Make it into a Powder.

Wounds of the *Liver* and *Spleen* require bleeding, and if the Belly be bound, Gliſters are dayly to be injected; to the Wonnd it ſelf are to be applied

plied Astringent and Drying Medicines.

Wounds of the *Kidnies* are difficultly and slowly cured: If made into the Cavity it self, the Blood that comes forth is Serous, otherwise more pure. This Liniment is of great esteem to be used outwardly.

Take Rosin of the Pine, six ounces; Oyl of Bayes and Turpentine, of each an ounce; Gum Elemne, four ounces and an half: Mingle them.

Inwardly are to be given the Troches of Alkakingi, *Gordonius*, *de Carabe*, or Sealed Earth, Bole, Turpentine and Wound-Drinks.

Wounds of the *Bladder* are generally cured after the same manner; but it is very seldom that they leave not behind them a Fistula.

The following Pills are of great use in Wounds and Ulcers in the Kidneys and Bladder.

Take Mans Bones calcin'd, three drams; Chalk, Burnt Talk, of each a dram, Troches of Winter-Cherries, three drams; Venice-Turpentine a little boil'd, as much as is sufficient: Make them into Pills about the bigness of little Pease, rowling them in the Liquoras-powder; let the Patient take morning and evening six of these.

The End of the Second Part of the Second Book.

BAR-

BARBETTY'S CHIRURGERY.

The Third Book of the Second Part of CHIRURGERY.

Of Ulcers.

CHAP. I.

Of the Nature, Differences, Causes, and Signs of Ulcers.

AN Ulcer is a solution of continuity with Diminution of Magnitude in the soft Parts, from a Corroding Matter.

Differences are taken, 1. From the *Form* of the *Ulcer*; so 'tis great, little; long, short; broad, narrow; right, transverse; equal, unequal; deep, superficial. 2. From the *Part affected*; which sometimes is the skin and flesh only, sometimes the Tendons, Nerves and Vessels that carry the Blood. 3. From the Causes; which shall be presently spoken of. 4. From the Symptoms; so 'tis painful, itching, obstinate, verminous, carious.

Cause is a sharp and corrosive Humor, and that is twofold. 1. *Internal*, as Choler, Melancholy, Serum, Salt, Phlegm, and other Malignant Humors. 2. *External*, as Burning and Corrosive Medicines: the Sweat of man infected with the Itch, Leprosie or Pox.

Signs of Ulcers in general are manifest enough, the particulars you shall have in their places.

Prognostick. By how much deeper the Ulcer is, so much the longer 'tis in Curing. Ulcers in Parts that are subject to much Hutnidity, are difficultly cured. If an Ulcer cannot be cured in a long time, or when Cicatrized, breaks out again, the Cause is, the Bone being foul under it. Ulcers near to the Nerves, Veins or Tendons, are dangerous. In Cacochimick Bodies, their Cure is tedious. If the Matter which comes from them be good, it gives hope of an easie Cure. Good Matter is of a middle consistence between thin and thick, white, light, equal, and not at all stinking. That which is ill, is thin and fluid, pale, livid, and of ill smell. Old and inveterate Ulcers are not cured without danger, except the Body be well purged, and a good order of Diet observed, otherwise some Diseases will ensue.

CHAP. II.

Of the Cure of Ulcers.

Purging and *Bleeding* are here often necessary, but a good ordered Diet alwayes. Hot Meats and Drinks hurt, as also all Sweet and Salt things.

things. *Outwardly*, the Humor ought to be concocted and turned into Matter, the lost flesh ought to be repaired, and then to be skinn'd. Remedies necessary to perform these, are Digestives, Sarcoticks and Epulonicks; which are set down in the seventh Chapter of the second Book of the second Part. We will add some Compounds.

A Defensive.

Take *Guaiacum* Wood, long Birthwort Roots, of each an ounce, Centaury the less, Wormwood, Agrimony, of each a handful: Boil them in white Wine, and to two ounces and an half of the strained Liquor, add of the Meal of Orobus, half an ounce; Myrrhe powdered, two drams; of honey of Roses, two ounces; Spirit of Wine, an ounce; Venice-Turpentine, as much as is sufficient to make it into a Liniment.

A Sarcotick.

Take the Brown Ointment of *Felix Wurtz*, three drams; *Basilicon*, half an ounce; *Gum Eleumi*, two drams; Turpentine, six drams; Colophony, Mirrhe, Aloes, Mastick, of each half an ounce; Litharge of Gold, three drams; Oyl of Roses, as much as sufficeth to make it into an Ointment.

An Epulotick.

Take *Sacchar. Saturn.* Litharge, of each two drams; *Lapis Calaminaris*, one dram; Roots of Tormentil, Bistort, round Birthwort, Dragons Blood, burnt Egg shels, of each half an ounce: Make them into a Powder.

Let it be sprinkled upon the Ulcer, or mingled

with *Unguentum Diapompholigos*, or *Emplastrum Griseum*, and you will have an excellent Cicatrizing Plaister.

Oftentimes there is some distemperature present, impeding so the Cure, that you must not expect *this*, before the Chirurgeon hath corrected *that*.

Difference.] This distemperature is fourfold, caused from Heat, Cold, Moisture and Dryness.

Signa.] In a *hot* distemperature the Matter is sharp, the edges of the Ulcer red, and great pain. In a *cold*, the edges are soft, white, and where things succeed not well, livid. In a *dry*, the edges are dry and hard, little or no Matter. In a *moist*, the flesh is soft and loose, often increasing, great quantity of Matter.

Prognostick.] The Cure of all Ulcers is very difficult, which have a dry distemperature joyned with them.

Cure, in a *hot distemperature*, Plantain, Endive, Nightshade, Bole, Burnt Lead, Cadmia, *Saccharum Saturni*, Whites of Eggs, *Oxycratum*, Turpentine, Oyl of Roses, Violets, Myrtles; Ointment of Ceruse, white Camphorated, Roses.

In a *cold*, Oyl of St. *Johns*-wort, Nard, Orrise, Camomile, Rue, Dill, Rosin of the Larch-Tree, Spirit of Wine, Plaister of Betony.

In a *dry*, Let the Part be fomented with warm water, and the Chirurgeon must abstain from drying Medicines, till this distemperature be wholly gone; seeing otherwise the Cure is difficult.

In a *moist*, Cyperus Roots, St. *Johns* wort, Wormwood, Sage, Horehound, Betony, burnt Vitriol, burnt-lead, Litharge, Ceruse; Red Lead, Frankincense, Mastick, *Emplastrum Gryseum*,

&c

de Minio; as all things that are very drying.

Sometimes to this distemperature of the Part, is joyned a Flux of Humors; where *Purging*, *Repellents* and *Intercipients* are necessary. Issues in this case are of great use, especially in old Ulcers. No fat or unctious Medicines must be here applied, but strongly drying, which though very excellent, ought often to be renewed.

Sometimes there is *proud flesh*, of the taking away of which, look in the preceding Book.

The *edges* of the *Ulcer* are sometimes *Callous*; where emollent and gently dissolving Medicines are convenient, *viz.*

Take Mussilage of Marshmallow-seeds and Fenugreek-seeds, of each two drams; Turpentine, an ounce; Oyl of sweet Almonds, white Lillies, of each three drams: Make it into an Ointment.

If this and the like are not sufficient, the green Water set down in the fourth Chapter of the Second Book, is very convenient, but if this sufficeth not, the edges ought to be scarified, or the Callosity is wholly to be taken away.

Worms sometimes breed in Ulcers; where you perceive them, draw them forth with a convenient Instrument; but if they stick fast to the flesh, apply the following Medicines.

Medicines against Worms.

Wormwood, Horehound, Centaury the less, Germander, Dittany, Gentian, Aloes, Mirrhe, Bulls-Gall.

Take Aloes, Meal of Lupines, of each two drams; Mirrhe, Verdigreece, of each a dram; Bulls-

Gall, half an ounce; Honey, as much as sufficeth to make it into a Liniment.

CHAP. III.

Of an Ulcer with foul Bones.

IT falls out sometimes that the Bone which lies underneath the Ulcer to be foul: Bones are corrupted and contract a rottenness, either from the *long Flux of Humors*, or from the *Acrimony and Malignity of them*, or from an *Occult quality*, or from a *Contusion*, in some manner injuring the Bone it self, or from *sharp Medicines*.

Signs of Corruptions are many; where the Bone lies open to the sight, at first it appears of the colour of fat, then yellow, afterwards black and unequal; but where it cannot be seen, Chirurgeons may judge that there it is a corruption, 1. If a Fistula preceded, or the Ulcer hath been of long continuance. 2. If the Ulcer being skinn'd break out again. 3. If the flesh above it becomes loose, spungy, pale or livid. 4. If with the Probe you find no resistance, but an inequality. 5. If the Matter be much, thin and stinking.

Prognostick.] If the *Caries* be near the Nervous parts, or in the Joynts, or about the Tendons, Arteries or Veins, 'tis not easily cured; but for the most part the Tendon and Nerve are corrupted with it: No Ulcer can be cured whilst the Bone remaines foul.

Cure.] The corrupted Bone ought to be corrected, either with Medicines, or with Chirurgery, or

or by both. Therefore the flesh must be divided as soon as may be, that the Carious Bone may be laid open (lest some considerable Nerve, Tendon or Artery be hurt) according to the length of the Part, and the ductus of the Fibres, not transverse; then let those Medicines be applied that may separate the Corrupted Bone from the Sound; and that may preserve the Sound from Corruption.

Medicines against Corruption of the Bone.

Roots of round Birthwort, Briony, Orrise, Dragons, Hore-strong, *Guaiacum*, Bark of the Pine, Aloes, *Euphorbium*, Mirrhe, Alom, *Chalcanthum*, Lime, *Chrysocolla*, burnt Pumice, the Scales of Brass, *Aqua fortis*, Spirit of Brimstone, of Vitriol; Salt, Tartar; Oyl of Vitriol, Brimstone, Antimony.

Take Mummy, Sarcocols, of each half a dram; *Euphorbium*, a dram: Mix them, and make a Powder.

Take Roots of round Birthwort, Orrise, Horestrong, of each half an ounce; Mirrhe, Aloes, of each a dram and half; Bark of the Pine, Scales of Brass, of each a dram; Earth-worms, two drams; Honey as much as sufficeth to make it into an Ointment.

Take Juice of Celandine the greater, two ounces; Spirit of Wine, an ounce; Mirrhe, Aloes, of each two drams; White Vitriol, a scruple: Mingle them for an Injection.

If the corruption of the Bone be so great, that it cannot be removed by Medicaments, then we must come to Chirurgery, and either *scrape* the

foul Bone, if the corruption be small; or *Perforate* it, if great; or rather use an *actual Cautery*; for without these, you will scarce be able perfectly to cure it.

CHAP. VI.

De Ulcere Depascente, &c.

AN Ulcer further and deeper spreading, is called *Depascens*; and if it be with putrefaction, is call'd Νομή; if without it, *Phagadena*; if only in the skin, *Herpes*; if ill-natured, *Cacoethe*.

Cause is, the *salt Serum of the Blood, salt Phlegm, burnt Choler, or some other Malignant Humor.*

These Ulcers can scarce be cured, unless the Cause be first removed, and the whole Blood purified; therefore here must be observed a *good Diet*, often *Purging*, and sometimes *Bleeding*.

External Medicines for Depascent Ulcers.

Plantain, Nightshade; Flowers of Red Roses, Balaustians, Cypress-Nuts, Pomegranate-rinds, Frankincense, Mastick, Tutty, Ceruse, Litharge, Red-Lead, Burnt-Lead, Brimstone, Pepper, Ginger, Mercury, *Ung. Ægyptiacum, Fuscum, Diapompholigos; Emplast. de plumbo, de minio, Gryseum, de ranis cum Mercurio.*

Take flowers of Red Roses, Balaustians, of each a handful; Leaves of Plantain, half a handful; Cypress-Nuts, Myrtle-berries, Pomegranate-rinds, of each half an ounce: Boil them in Red Wine.

Wash the Ulcer with it, then use over it this following. Take

Take prepared Tutty, half an ounce; Burnt-Lead, washed Ceruse, of each an ounce; Bole-Armenick, half an ounce; *Ung. Ægyptiacum*, as much as is sufficient to make it into an Ointment.

Or,

Take Long-Pepper, half a dram; Ginger, a scruple; Flower of Brimstone, Litharge of Gold, each two drams; Gunpowder, a dram; *Ung. Fusci* of *Felix Wurtz*, three drams; *Ung. Album, Camphoratum*, as much as sufficeth: Make it into an Ointment.

Take Mastick, Frankincense, Mirrhe, of each three drams, Litharge of Gold, Burnt-Lead, of each half an ounce; Quicksilver extinct in Turpentine, two drams; Brimstone, half an ounce; Pitch and Wax, as much as is sufficient to make it into a Plaister.

Concerning the Cure of these Ulcers, 'tis to be noted, 1. External Medicaments ought to be changed three or four dayes; for Nature rejects the best, longer applied. 2. They ought not to be dresst above once or twice a day, except the Matter be very sharp, that the Medicine may not be disturbed in its operation. 3. Repellent and Mercurial Medicines are not to be used, except with continual Purging you drain the Body of its Impurities. 4. These Ulcers are seldom cured without the use of purging or drying Decoctions, made of *China, Guaiacum, Sarsa*, &c.

CHAP.

CHAP. V.

Of Fistulaes.

A *Fistula is a long, narrow hollowness, or a sinuous Ulcer, narrow and callous, not easily receiving Cure; for the most part, taking its beginning from an Abscess.*

Difference, are *straight, oblique, simple, manifold*, that is, having many hollownesses; some going to the Bone, some to the Veins, Tendons, or Nerves.

Signs.] The edges of this Ulcer are white, hard, without pain, or but little; sometimes moist, but commonly dry: Outwardly the Cavity may be perceived in one place or other by pressing the Part; in which also sometimes there is a noise perceived, and the Matter now in lesser quantity, otherwhiles in greater, is prest out through the Orifice of the Fistula: By a Probe we can search the Cavity of a straight Fistula; but in an oblique, we use a Wax-Candle instead of a Probe. That is more convenient when the Fistula penetrates to the Bone; this, when it is in the fleshy and sensible parts: *If the Fistula remain only in the fleshy parts*, that which is touched by the Probe, is soft, and the Matter that comes out, is white, equal, and in great quantity. *If it extend to the Nerve*, there is great pain in searching it to the bottom of the hollowness, and the Matter is fat and oyly, but is less in quantity, and the action of that Member to which the Nerve goes to, is rendred very uneasie:

uneasie: *If it passeth to the Bone*, that which is touched by the Probe, is hard, not yielding, and painful, where the *Periostium* is not consumed; The Bone, if foul, is rough, and seems unequal to the touch, the Matter is black, stinking and very thin: If the Cavity *joynes to a Vein*, the Matter is like dregs, but redder and thicker, where the Vein is eroded: *If it penetrates the Arteries*, that which comes forth, is thin and shining, and comes forth with a leaping.

Prognostick.] All Fistulaes are of hard cure; some incurable, others that ought not to be cured; to wit, those by which the superfluous Humors have for long time been vented.

A recent Fistula, and not deep, in a young body, and otherwise sound, is easily cured; but an old deep Fistula, having many Sinu's in an ancient, emaciated, cachochimich Body, is very difficult.

Those are also difficultly cured, yea, for the most part incurable, which touch the Tendons, Nerves, Veins, Arteries, Bones, and those that are in the Joints, Vertebra's, Cavity of the Breast, and lower Belly, the Womb, Bladder, or Guts.

Fistulaes are wont to come in those places where Nature is accustomed to discharge her self of vitiated Humors, to wit, in the Abdomen, Groins, Buttocks, Fundament, Cod and *Perinæum*.

Where the Edges are not very hard, but somewhat soft and mattery, they do promise speedier Cure.

Cure of Fistulaes are twofold, one Real, and the other Palliative; by this the Fistula is dried within, and skinned without; the hollowness nevertheless remaining, commonly continuing some little

little while closed, but easily breaks forth again, except by a good Diet, often Purging and Bleeding it be perfectly cured: The true Cure is performed in this manner; good *Diet*, *Purging*, *Bleeding* and *Wound-Drinks* effect here very much, but the *Hæmorrhoids flowing* more. *Natural Baths* do oftentimes cure the greatest Fistula's; in defect of them, may be prepared *Artificial*, of Brimstone, Alom, Salt and Tartar, boil'd in Water; afterwards let the Fistula be dresst according to Art: Externally, the Part is to be *corroborated*, *the Humor contained in the Sinus to be dried*; but especially the *Callosity of the edges is to be taken away*; therefore are Medicines for this purpose to be used, by whose help many Fistulaes have been cured: but these not being sufficient, an *actual Cautery* is to be applied, having first divided the edges, for which purpose the *Syringotomon* of *Fabritius Aquapendens* is a most useful Instrument.

Medicines for a Fistula.

Roots of Hellebore, Cuckopintle, Gentian, Birthwort, *Euphorbium*, Juice of Celandine, Smallage, Dragons, Spurge, Flax, strong Vinegar, Lye, Lime, Alom, Vitriol, Verdigreece, Orpine, Mercury precipitate and sublimate, the Phlegm and Spirit of Vitriol, *Ung. Ægyptiacum*, *Fuscum*.

A Corroborating and Drying Plaister.

Take Mastick, Frankincense, Pomgranate-rinds, of each two drams; Dust of a rotten oaken post finely searced, three drams; Red-Roses, Myrtle-berries, of each a dram; Yellow Wax, Rosin of the

the Pine, Oyl of St. *Johns*-wort, of each an ounce; Make it into a Plaister.

An Ointment.

Take the Juice of Smallage, two ounces; of Celandine, two drams; of Onions, one dram; Honey of Roses, three ounces; Turpentine, as much as is sufficient to make it into an Ointment.

Another.

Take Juice of Flower-de-luce, an ounce; of Celandine, half an ounce; Red-wine, six drams; Honey, four ounces: Let them boil a little, then add of Aloes, Mirrhe, of each half a dram; White-Vitriol, a scruple; Litharge, two drams; Turpentine, a little: Make it into an Ointment.

Another more Excellent.

Take Powder of Briony-roots, a dram; Frankincense, Mirrhe, of each two drams; Verdigreece, half a dram; *Sal-Armoniac*, a scruple; Hogs-greese, Oyl of Olives, of each as much as sufficeth to make into an Ointment.

Another of greater Virtue

Take White Vitriol, four ounces; Alom, Verdigreece, of each half an ounce; Strong Vinegar, six ounces: Calcine them in a luted Vessel, and powder it.

Mix it with *Ung. Ægyptiacum*, and arm the Tent with it.

The brown Ointment of *Felix Wurtz*, is a most

most excellent Medicine in this case, if it be reduced by boiling into the form of a Suppository, and so put into the Fistula: You will do well to prepare it your self; for 'tis not rightly made by every one: The following Suppositories are excellent, especially in Fistulaes of the Fundament, and other soft Parts.

Take Agrimony, half a handful, *Scordium*, a pugil, Flowers of St. *John's*-wort, two pugils, French-Barley, an ounce; boil them in White-Wine, and strain them, adding of Virgins-Honey, four ounces: Boil them to a thickness, then add of Male-Frankincense, choice Mastick, of each two drams; Red Mirrhe, a dram and half; Sarcocols, three drams; White Vitriol, a dram: Make them into Suppositories.

CHAP. VI.

Of Burns.

Burning is a solution of Continuity, caused by an External burning-matter always burning the Scarf-skin, for the most part the Skin, and sometimes also the Muscles, Veins, Nerves and Tendons.

Difference.] It admits of three sorts. 1. Sometimes there is a heat and pain, at least in the Part affected, caused from burning; and except Remedies are presently applied, the *Scarf-skin* is separated and divided from the Skin, and Blisters are raised, which contains in them clear Water. 2. Sometimes the *Skin* it self is burnt, then presently

ſently a Bliſter is raiſed, but no Eſcar made. 3. Sometimes alſo the ſubjacent *fleſh* is burnt, here the Skin is black and void of ſenſe, and after the Eſcar falls off, leaves a deep Ulcer.

The differences ſpring from the Cauſes; for Lead, Tin, Iron, Powder, Lightning, do vehemently burn; Oyl, Vernice, Pitch and Wax leſs; Straw, Water, Flax, and the like, leaſt of all.

Signs, by what hath been ſpoken, are manifeſt enough.

Prognoſtick.] A deep and great Burn, very ſeldom but leaves ugly Scars behind it; Burning from Lightning, is for the moſt part mortal: That which penetrates to the great Veſſels, generally occaſions a Gangrene; if to the Inteſtines, incurable; Burns of the Eyes and Groins, very dangerous. If a hairy part be burnt, it remaines bald; never hair grows there again.

Cure.] The chief care muſt be *to draw out the fire*, by which in a light burning you preſerve from Bliſters and Ulcers; in a great one, you free from all danger; therefore what Medicine ſoever is at hand, is preſently to be uſed; let the hurt Part be held to the Fire, and fomented with warm Water, Ink, Lye, or let there be applied Soot, or an Onion beaten with Salt, or any the following

Medicines in Burning.

Roots of White Lillies, Liquoras, Leaves of Bete, Coleworts, Hemp, Onions, Garlick, Herbane, Tobacco, Leeks, St. *Johns*-wort, Flowers of Camomile, Melilot, Elders, Seeds of Quinces, of Line, Camphire, Mirrhe, *Olibanum*, Soot, Whites

Whites of Eggs, Hogs-fat, Pigeons-dung, Sheeps-dung, Hens-dung, Nitre, Ceruse, Ink, Brine, Lie, Oyl of Nuts, Rape, white Ointment with Camphire, Plaister of Red Lead.

An Ointment.

Take Juice of Onions, two ounces; Venice-Sope, three ounces, Common Salt, two drams; Hogs-greafe, two ounces, Wafht Lime, three drams; Oyl of Rape, Muffilage of Quince-feeds, of each an ounce; Turpentine, as much as is fufficient to make it into a Liniment.

Another, by whofe means a poor Souldier became rich.

Take Leaves of new gathered Sage, a handful; of Plantain, two handfuls, Freth Butter without Salt, fix ounces; New Hens-dung, and the whiteft as you can, three ounces; fry them together for the fpace of a quarter of an hour, preft them hard out, and referve the preft-out Liquor for your ufe.

This Oyntment is excellent in Burning of all forts, even in the greateft; it being melted, let the hurt Part be often annointed with it in a day; then laying over it a freth Leaf of Colewort, Bete, or Plantain.

If any Puftules are raifed, and yet the Burn not great, open them the third day, and let not the opening be prolonged further, left there follow a Corrofion.

If the Skin be wrinkled and dried, all the Puftules are prefently to be cut, then let the precedent Ointment, or this following be applied.

Take

Take Oyl of Violets, white Lillies, ſweet Almonds, Butter without Salt, of each an ounce; Muſſilage of Fleawort-ſeed, Meal of Marſhmallows, of each an ounce and half; Saffron, half a dram; Soot, *Ung. Baſilicon*, of each an ounce Make it into an Ointment.

If there be an Eſcar, let its ſeparation be endeavoured the firſt or ſecond day; for which the laſt above-preſcribed Ointment is exceeding good; but if it ſeparates not, then Inciſion is to be made unto the ſound fleſh: when 'tis ſeparated, 'tis to be cured as a common Ulcer.

If there be danger of a *Gangrene*, or already preſent, it requires its Cure, which is already treated of in its place.

Where the Eye-brows, Lips, Fingers or Toes are burnt, a clean Linnen Cloth, or Plate of Lead is to be put between them.

If *a tender part be burnt*, you muſt abſtain from the uſe of Onions, Sope, Salt, and ſuch like ſharp Medicines.

That *ugly Cicatrices* may not be left, you muſt forbear the uſe of ſtrong drying Medicines.

CHAP. VII.

Of particular Ulcers.

IN an *Ulcer* of the Head, neither *Unctions* or *Repellent Medicines* are convenient. If the ill quality of the Humor requires the uſe of Mercury, great care is to be had, that it be well prepared; for *Crude* is very dangerous; which ought not to

be applied where the Ulcers are about the Sutures, seeing a Salivation may be easily raised, which will difficultly afterwards be suppressed.

Ulcers of the Eyes, for the most part, leave blindness, especially where the Horny Tunicle is wholly corroded, by which the Watry Humor is let out, as also oftentimes the Crystalline: an Inflammation generally is very painful, which is forthwith to be removed by those Remedies delivered in the seventeenth Chapter of the first Book. To the *Ulcer* it self, first, Absterstive, then Cicatrizing Medicines are to be applied.

An Absterstive Collyrium.

Take white Amber, Red Mirrhe, of each half a scruple; Eastern-Saffron, six grains; White of one Egg, Sugar-Candy, a dram; Eyebright-water, two ounces and an half: Mix them.

Another,

Take Aloes, Frankincense, prepared Tutty, of each half a scruple; Glass of Antimony, six grains; Gum, Tragaganth, a scruple; Celandine-water, three ounces: Mix them.

Or,

Take Red Coral prepared, Frankincense, of each half a dram; white Troches of *Rhasis*, prepared Harts-horn, of each a scruple; Burnt-Lead, fifteen grains; crude Antimony, a scruple; Honey of Roses, as much as is sufficient to make it into an Ointment.

A Cicatrizing Collyrium.

Take Burnt-Lead, White Troches of Rhasis, Sarco-

Sarcocols, *Sac. Saturni*, of each half a ſcruple; Roſe-water, four ounces: Mix them.

Ulcers of the Noſe moſt commonly yield an ill ſent, whence they are called *Ozæna*. *Cauſe* is a ſharp, bilious, ſalt or malignant humor, which ſometimes corrupts the Bones themſelves, but chiefly the Cartilage, ſo by a flat Noſe deforms the Face. They are hard of Cure, and therefore reſpect muſt be had to the whole Body, at leaſt the Head, which requires corroborating, and moderate drying.

External Applications are to be *abſterſive*, and becauſe of the humidity of the Part, ſomewhat drying. The juyce of *Scharley* mixt with Honey of Roſes, is excellent here;

Take one Pomegranate ſliced, Litharge of Gold, two drams; red Lead, a dram; Burnt-Alom, a ſcruple; *Mercurius dulcis*, half a dram; Whiteſt Sugar, an ounce; White Wine, ſix ounces: Let them boil a little, and preſerve the ſtrained Liquor for uſe.

Take Burnt Lead, waſht Ceruſe; prepared Tutty, Litharge, of each two drams; Frankincenſe-Bark, one dram; Mirrhe, round Birth-wort, *Mercurius dulcis*, of each half a dram; *Ung. Fuſcum* of *Felix Wurtz*, three drams; *Ung. Album, Camphorat.* as much as ſufficeth to make a Liniment.

Fumes of the following Powder put upon Coles, is very good, provided it be uſed cautiouſly, and not above once, or at moſt twice a day, leſt a ſalivation ſhould be raiſed; which alſo will cure the Ulcer: The quantity of a Nutmeg is ſufficient for a Doſe.

Take Benſoes, Sandarach, Maſtick, Frankincenſe, Storax, of each a dram; Artificial Cina-

bar, half an ounce: Make it into a Powder for Fuming.

Ulcers of the Mouth require often *Purgings*, sometimes *Bleeding*; and if there be Malignity, *Antivenereal*, *Sudorifick Decoctions*, which are here of great use.

External Remedies also here, are Absterfives and Driers: I have tried the following to be of singular virtue.

Take Oak-leaves, a handful; Flowers of Roses, Balaustians, of each a pugil; Pomegranate-rinds, two drams; Burnt-Alom, two scruples; White Vitriol, half a scruple; Boil them in Red-wine; to half a pint of the strained Liquor, add Honey of Roses, *Rob. Diamoron*, of each an ounce: Make a Gargarism.

Or,

Take common Chalk, burnt-Talk, Red-Lead, Burnt-Alom, of each a dram; Bole-Armenick, two drams; *Mercurius dulcis*, half a dram; Vitriol, a scruple: boil them in white Wine, and to ten ounces of the Liquor, add Syrup of Comfrey of *Fernelius*, two ounces and an half: Mix it for a Mouth-water. Or,

Take burnt-Talk, Flower of Brimstone, Bole-Armenick, Frankincense, Comfrey-Roots the greater, Pomegranate-Rinds, of each a dram; Burnt-Alom, two scruples; Verdigreece, half a dram; Honey of Roses, as much as sufficeth to make it into a Liniment.

Or,

Take *Ung. Fuscum* of *Felix Wurtz*, three drams; Honey of Roses, two drams: Make a Linimem.

The Fume for Ulcers of the *Nose*, is here useful;

ful; as also common Ink. If Medicines effect nothing, an actual Cautery must be used.

An Ulcer of the Bladder is troublesome, and for the most part incurable, having its beginning from a Wound, the Stone, a sharp Humor, or Diuretick Medicine, it requires many Internal and External Remedies; which that we may not exceed our bounds, we leave to be prescribed by the Physitian, except some few, whose vertue hath been often experimented by us.

Take Roots of round Birthwort, Comfrey the greater, Osmond-royal, of each half a dram: Mirrhe, Frankincense, Storax, Mastick, Gum Tragaganth, Seeds of white Poppy, Henbane, of each a scruple; Juice of Liquoras, half a dram; Venice-Turpentine, as much as to make them into Pills of the bigness of a little Pea.

Or,

Take Troches of *Alkakingi*, *de Carabe*, Burnt-Talk, of each half a dram; Bole-Armenick, Sealed Earth, Mans-Skull, of each a dram; Venice-Turpentine, as much as to make them into Pills of the bigness of a little Pea.

Let the Patient take six of these Pills, or of the former every day Morning and Evening.

Take Lime-water, three ounces; Plantain, two ounces; white Troches of *Rhasis*, a dram; Mix them for an Injection, to be used twice or thrice every day.

Lime-water in this place is nothing else than common water wherein quick Lime hath been quencht: have a care of making it too strong.

Ulcers of the neck of the Bladder are cured after the same manner, though indeed more easily; and those of the *Penis* far more easily; although

contracted from a virulent *Gonorrhœa*. These are to be known by the pained Part, and by the coming forth of the Matter, before or after making of the Urine; except timely you endeavour their Cure, the Disease slides inwardly, and will perforate either the Bladder or *Perinæum*: Sometimes there are here one or more *Caruncles*, which, because they cannot alwayes be cured by Medicaments, they may be taken away by Chirurgery, by the assistance of an Instrument described by *Pary* and others; yet many times have I cured these Excrescencies, by using of small Suppositories made of the following Ointment, thickned by gentle boiling.

Take *Ung. Fuscum* of *Felix Wurtz*, Honey of Roses, of each two drams: Make it into an Ointment.

In these Caruncles, before they are fixt, we effect much by Vulnerary, Sudorifick and Antivenereal Decoctions, outwardly using the following Medicine.

Take Litharge of Gold, Flower of Brimstone, of each three drams; prepared Tutty, two drams; Red Lead, half a dram; *Ung. Ægyptiacum*, a dram, Honey of Roses, as much as is sufficient to make it into an Ointment.

Anoint a Wax-Candle with this Ointment, and put it into the Urinary passage, renewing it twice or thrice a day, until there is an absolute Mundification. Its Consolidation is performed with no better Medicines (that I know of) than by the *Amalgama* of *Mercury*, described in the seventh Chapter of the second Book, if it be mixt with *Ung. Diapompholigos*, and the Wax-Candle annointed with it, and put into the *Urethra*, as is already said.

Ulcers

Ulcers of the *Neck of the Womb*, though slight, they are of difficult Cure, and if those Ulcers are negligently handled, they produce grievous Symptoms, and sometimes a Gangrene; after *Purging*, *and the use of Vulnerary and Venereal Decoctions*, as also *Bleeding*, the following is good.

Take Roots of Orrise powdered, Litharge of Gold, Flower of Brimstone, of each two drams; Mastick, a dram; *Mercurius dulcis*, half an ounce; *Ung. Fuscum* of *Felix Wurtz*, two drams; Honey of Roses, as much as sufficeth to make it into a Liniment.

A Fume.

Take Gum of Juniper, an ounce; Mastick, Myrrhe, *Landanum*, of each two drams: Make it into a Powder.

If they had their Original from the *French Pox*, add to this Powder a dram of Cinnabar, and use it twice a day.

Ulcers of the *Legs*, especially those that are upon the Shins, occasion great trouble to the Chirurgeon, because the Humors of the whole Body continually flow to those parts; for which reason the Medicines are oftentimes used to little purpose, the Part must be well rowled from the Foot upwards, and the Body once or twice a week well purged.

A Plate of Lead, or Plaister of Lead, or *Diapompholigos*, of *Minium*, *Griseum*, or the following is very good in this case.

Take the Plaisters of Lead, *Griseum*, of each an ounce; Litharge of Gold, Ceruse, of each three drams; *Sac. Saturni*, half a dram; Gum

Elemny, two drams: Make it into a Plaister.

Another very good in these, or other Malignant Ulcers.

Take *Album Græcum*, Froth of the Sea, of each an ounce; Oyl of bitter Almonds, four ounces; Sheeps-Sewet, six ounces; White Wax, as much as sufficeth to make it into a Plaister; to which, if you please, you may add some *Diapompholigos*.

Fac totum Magistri Christiani.

Take Oyl of Roses, twelve ounces; Cerusse, Mussilage of the Roots of Comfrey, of each six ounces; White Wax, four ounces; Litharge of Gold, Red-Lead, *Lapis Calaminaris*, of each three ounces: Make it into an Ointment according to Art.

Another.

Take Flowers of Red-Roses, one ounce; Balaustians, two drams; Elder-flowers, an ounce and half; Roots of Tormentil, Round-Birthwort Roots, Long Pepper, *Lapis Calaminaris*, of each an ounce: Prepared Tutty, two drams; Bole-Armenick, half an ounce: Litharge of Gold and Silver, of each an ounce and half; Rose-water, five ounces; White Wine, twelve ounces: Mix them.

The End of the third Book of the second Part.

THE AUTHORS
PREFACE
TO THE
STUDIOUS READER.

AS Chirurgery *is a part of* Phyſick, *that ought not to be ſeparated from it; ſo alſo let not any imagine to himſelf, that he can deſerve the name of an Experienc'd* Chirurgeon, *except he underſtand ſome part of it, eſpecially* Anatomy, *the only Foundation of* Chirurgery. *But ſeeing that the ſtudy of ſome moſt curious* Anatomiſts, *hath found out many excellent things in this happy Age, altogether unknown to the* Ancients *(though ſome fooliſhly affirm the contrary, with great pains, aſcribing thoſe things to them, which they never ſo much as dream'd of) which indeed are*

not

not to be accounted of, as ingenious ſubtilties, but as the Fundamental Rules and Cynoſure to thoſe that Navigate through the vaſt Ocean of this Art. It is every ones part to labour in it, that it may be perfected, and every day more and more illuſtrated; which may at length be brought to paſs, if with the greater Pains, Induſtry *and* Curioſity *we enquire into the unknown* Regions *and* Tracts *of the* Microcoſm, *and not given to ſloth, plow our Ground with other mens Oxen, only truſting on the Authority of the Ancients, which the Learned wiſely call* Aſinorum pontem. *As for me, I have ventured to introduce ſome new* Opinions, *becauſe that I deemed them in the nature of things, to exceed thee and me, and all in Antiquity. If thou enquireſt into it with the ſame labour, perchance thou mayeſt embrace the ſame* Opinions: *That of the* Circulation of the Blood *is now ſpread over all* Europe; *yea, the principal* Profeſſors *in the Illuſtrious* Univerſities, *do all with one voyce approve it; the* Salivous paſſages *and* Limphaducts, *as alſo the* Lacteal *Veſſels, both the greater and leſſer, may ſo plainly be demonſtrated, that they may be perceived as it were with one Eye. My own proper and peculiar* Opinions *I have confirmed with Reaſons, which I ſuppoſe are agreeable to*

our

our Art: In the reſt, if thou findeſt any thing new, it is nothing but what can be demonſtrated by Diſſection. What others have writ at another time, pleaſeth us alſo; for I cannot, nor ought not to change the parts of the Body; nevertheleſs the Diſpoſition *of my* Genius *is ſo pregnant, that I hope it will free thee from great pains and trouble.*

For, firſt I thought it convenient largely to diſcourſe of the ſimple Parts, their Affections and Uſe, that thou mighteſt not be neceſſitated to repeat in following the ſame thing a hundred times.

To this end I have retained the Terms of our Art, uſed by the Ancient Latine Writers.

Then I expound the elaborating the Blood, *which properly is the* Foundation *of all* Phyſick, *and which the Wits of the Learned have long and much wreſted:* O fœliciſſimum qui metam proximè attigerit!

Laſtly, All the parts of the Head, Breaſt, Abdomen and Joynts, I have ſo deſcribed, having not at all ſeparated them, that thou mighteſt not be forced to ſeek one here, and another there.

But

But that this knowledge might become the more profitable, I have shewn the Uses of it in Chirurgery, *which I hope you will well apply, and endeavour with me, as much as possible, to perfect this Imperfection.*

BAR-

BARBETTI'S CHIRURGERY.

The Third Part of *Chirurgery*; OR, The *PRACTICAL ANATOMY*:

In FIVE BOOKS.

1. *Treats of the Parts in general.*
2. *Of the Head.*
3. *Of the Breast.*
4. *Of the lower Belly.*
5. *Of the Joynts.*

CHAP. I.

Of the Practical Anatomy.

THE PREFACE.

THou which desirest to know thy self, come hither and view; the little World will declare how thou oughtest to value the great one. The Architecture of thy Creator, by no Art to be bettered, the Essence of thy Soul, not to be reacht by the greatest strength of thoughts,

time, and in a convenient quantity; otherwise they easily fall into a Dropsie. Strong *Purges*, to wit, *Euphorbium*, *Scammony*, *Coloquintida*, and those that are compounded of them, they cannot bear; though *gentle Medicines*, *easily*; as *Cream of Tartar*, *Manna*, *Tamarinds*, *Prunes*, *Syrup of Roses with Senna*, *Syrup of Succory with Rhubarb*, *Pulp of Cassia*, *Electuaries of Diacatholicum Lenitive*, &c. As they easily fall into a Disease, so they quickly again recover.

The *Cholerick* have black *Hair*, and for the most part curled; *lean*, but ver *strong*: *Coition* profitable; they are *judicious*, and *swift* in action, avoiding *idleness*; they trust neither the words or gestures of men; soon subject to Laughter, if the thing require it, otherwise *grave*: When *irritated*, addicted to strike; more inclined to *Drink* and *Watching*, than to *Eating* and *Sleep*; their dreams are of Fire, Thunder, Quarrels, Battels. *Pulse strong*, *quick* and *great*: *Urine* high-coloured, as also their *Excrements*.

Choler requires not *Bleeding*, yet permits it, if there be a quantity of Blood joyned with it; but it must neither be excessive, oor oftner repeated, than just necessity requires, lest the Choler shews its Malignity; gentle *Purges* relieve it, but strong irritates it; it produceth *vehement and dangerous Diseases*, and for the most part short.

Phlegmatick have long Flaxen *Hair*, which easily falls off, and as easily grows again; *Pale-faced*, *cold* and *weak Body*; long ere they desire *Marriage*, and soon debilitated by it; *sloathful*, *unfit for Conversation*; not solicitous about publick Affairs; difficultly brought to Laughter or Anger, which then lasts not long: They *eat* and *drink* little,

thoughts, and the fragility of thy Terreſtrial Maſſion will teach thee to eſteem thoſe things more that are above thee, to uſe better thoſe things that are within thee, and to carry thy ſelf with a more compaſſionate mind towards thy Neighbour: although thou walkeſt here as a ſtranger, the conſideration of theſe things will ſhew thee, that thou oughteſt not to be a ſtranger in the moſt neceſſary knowledge of thy Duty, by which thou maiſt uſe it to the greater good of thy ſelf, ſo of others, if thou diligently enquire, of what parts the Fabrick of thy Body conſiſts; to this end, firſt we will ſhew the ſimple parts and their uſe; then after the diviſion of the whole Body, the compounded Parts,

The Chirurgical uſe.

Seeing 'tis very neceſſary even at firſt ſight that thou ſhouldeſt know the nature and temperaments of men, becauſe they give the Rules of what is to be done in the curing of each Diſeaſe, we have thought it convenient in the very beginning of this Treatiſe, to deſcribe their Signs.

The *Sanguine* abound with Hair, but lank and yellowiſh; in proceſs of time declining into blackiſh, *handſom, red-cheek'd, fleſhy, ſtrong:* When young, addicted to *Venery*, not enduring *labours*, eaſily *ſweating*, *pthyſical*, *affable* in their Converſation and Diſcourſe; nor *ſuſpitious*, equally prone to *laughter* and *tears*; they ſleep ſoundly, their dreams are pleaſant; *Pulſe* is great and ſtrong; *Urine* yellowiſh, and in great quantity, *ſoluble*; They hate Women, and, except in their company, ſeldom think of them.

They bear *Bleeding*, provided it be at a fitting time,

little, prone to *sleep*; *Dreams* are of Fish, of the Water and Rain; *Pulse* small and slow; *Urine* pale, and sometimes thin, but generally thick and darkish, the Belly *soluble*: they bear not *Bleeding*, except upon necessity; they endure strong *Purging*; their *Diseases* are *long*, but not *dangerous*.

The *Melancholick* are almost destitute of *Hair*, which is lank and black, of a *grim* countenance, the whole skin livid, *lean*, *slow*, and addicted to *Venery*, *prudent*, *morose* in conversation, readier to give counsel to others, than to themselves, not subject to *Laughter* or *Anger*, but long before appeased; they *eat* and *sleep* much; *Urine* copious, Excrements little, grievous *Dreams*, *Pulse* small, slow and hard.

Bleeding is hurtful, *Purging* profitable; the Diseases which it begets, are stubborn and tedious, and oftentimes more *dangerous* in the end than in the beginning.

Let these general Signs suffice in this place. But 'tis to be observed, that the Temperaments are mixt, and then the Signs are also. Yea, many Mutations, Vices and Dissimulations, as also Virtues and Ingenuity may be attributed to them, which is your part judiciously to distinguish; but we assent not to *Galen*, who held that the dispositions of the Mind relie upon the Temperaments.

CHAP.

CHAP. II.

Of the Parts in general.

A *Part* (*properly* ſo call'd) *is a firm, limited Body, which is nouriſhed by other living Parts but doth not nouriſh; having a peculiar uſe and operation for the advantage of the whole.*

It is *diſtinguiſhed*. 1. Into the *Principal Parts*, or thoſe *not ſo*: *Principal* are thoſe that perform ſome Noble Operation common to the whole Body as the Heart, Liver, Brain, Teſticles: *Thoſe not ſo*, are thoſe that ſerve the Principal, and whence they are call'd their Servants, as the Eye, Ear, Hands, &c.

This diſtinction pleaſed ſome Anatomiſts many years ſince, whom I much eſteem; yet not me: For if the Liver and Heart are numbred amongſt the Principal Parts, becauſe they elaborate the Blood for the advantage of the whole Body, why is not the Tongue accounted a Principal Part alſo? which is not only an Inſtrument of Speech, by which we are diſtinguiſhed from Beaſts, but alſo of Taſtes, by whoſe aſſiſtance we chuſe thoſe Aliments which are beſt, which if wanting, how the Heart and Liver could ſupply the Body with good Nutriment, I ſee not. The Brain governs all, but how I beſeech you? If the Inteſtines did not perform their Office aright, what would it effect? How ſhould we be eſteemed, if, like an Oiſter, we ſhould want Eyes and Ears? How deſpiſed are the Feet and Hands, yet in how many con-

ditions do they serve? For those not stirring, both Chilification would be impaired, and the Blood and the Spirits rendred thicker, and the Brain made unfit for all actions: In how short a time would the *Limpha* of our Body be corrupted, if, besides its own motion, it was not also moved with the whole Body? All things in our Body are joyned together as in a Clock, one cannot be without the other; neither is the most despicable Wheel less necessary than the Hand of the Clock it self, without which, it cannot be accounted a Clock.

2. Into *similar* Parts and *dissimilar*: A *similar*, which divided into many parts, yet, whole single parts be of the same Nature with the whole.

Dissimilar are made up of more or less *similars*, as the Hand, Fingers, Feet.

There are *ten Similars* found in the Body; a Bone, Cartilage, Ligament, Membrane, Fibre, Nerve, Vein, Artery, Flesh, Skin; the eight former are made of Seed; Flesh of Blood alone, the Skin of both.

This Division is subject to greater difficulties than the former; but seeing it is not convenient to reject it, without the greatest confusion in the practice of Physick, let us consider the thing it self, committing the Disputes concerning the Name, to the Schools.

Chirurgical Consideration.

1. *A Principal Part being affected* or *wounded*, renders the whole Cure dangerous; therefore *Prognosticks* are not to be given here, but with limitation, lest the sudden alteration be rather ascribed to thee, than to the Disease.

2. Wounds of the *similar* Parts are less dangerous

rous than of the *diſſimular*; yea, oftentimes they are ſooner cured by ſimple Medicines, than by compound; the conſent of the Parts, by reaſon of the Vital and Animal Spirits is ſo great, that ſcarce a Joint of the Finger being hurt, can be cured, without regard had to the whole Body. Indeed by the aſſiſtance of the Ligaments, Tendons, Membranes, *&c.* the Parts are ſo ſtraightly knit together, and ſo abound with Sanguinary Veſſels, that oftentimes upon the ſlighteſt hurt, the greateſt Symptoms enſue, if you order not every thing aright.

CHAP. III.

Of Bones.

A *Bone is a Similar Part, cold and dry, compoſed of Seed, that it might afford ſtrength to the Body, and help its motion.*

Naturally, 1. It is hard. 2. Covered with a Membrane. 3. White, with ſome Redneſs. 4. Hollow, or Spungy. 5. About the Extremities covered with a Cartilage. 6. Smooth. 7. Moiſtened with a fat Humor.

It is *nouriſhed* by Blood brought from the Arteries (every where ſo ſmall, excepting the lower Jaw, that Writers of great eſteem have denied them to the Bones) but eſpecially contained in the Marrow.

The *Marrow* is inveſted with a Membrane, it ſelf is altogether inſenſible; in the Cavities of great Bones, 'tis White mixed with Red, in the

lesser, White; in the Spungy Bones, soft and juicy.

Its *Sense* it borrows from the Covering Tunicle, for the most curious Observer never saw Nerves.

The Bones are *joyned together*, partly for the greater firmness, partly for the better Motion.

That Conjunction which is for their firmness, is called *Symphysis*, and is six-fold.

1. *Sutura*, as in the Bones of the Skull.

2. *Harmony*, which is by a right or oblique Line, as in the upper Jaw.

3. *Gomphosis*, as the Teeth in the Jaws.

4. *Sinchondrosis*, which is by an interposing Cartilage, as in the *Os Pubis*, or the *Sternum*.

5. *Syneurosis*, which is by the assistance of a Ligament, as the Thigh-Bone with the Hips.

6. *Syssarcosis*, which is by the accession of flesh, as in the *Os Hyoides*.

That Conjunction which is for Motion, is called Articulation, and is twofold.

1. *Diarthrosis*, to wit, a loose Articulation: And 2. *Synarthrosis*, to wit, a straighter Articulation.

And both is performed by three manner of wayes. 1. *Enarthrosis*, When the Cavity receiving the Bone is great, and the process of the Bone to be received also great, as in the joyning of the Thigh-bone with the Hips.

2. *Arthrodia*, When the Cavity is superficial, and the Process little, as in the hinder part of the Head, with the first Vertebra of the Neck.

3. *Ginglymus*, When one Bone takes into its Cavity the Process of another, and contrariwise the other Bone receives into its Cavity the Process of the former; as the Bone of the Thigh with the *Tibia*, and the Shoulder-Bone, the *Ulna*.

The

The *number* of Bones is greater in Children than in adult People; for by years, many of them so grow together, as that they cannot be separated any more; also their number is much lessened, when consideration of the Processes and small Bones is not had; from hence it is that some reckon 360, some, 304, others, 249.

The use of the Bones, is, 1. To be a stay or support to the Body. 2. Together with the flesh, to give it its shape. 3. To help Motion. 4. To defend several Parts.

Although the Bones ought to be described in particular by us in their proper places, yet an Anatomist cannot be perfect, that is ignorant of the Bones; therefore, before we begin the examination of other Parts, we think it convenient to exhibit to you the *Skeleton* in this place.

The Bones of the *Head*, we divide into the *Skull* and *Jaws*.

The *Skull* consists of eight Bones; which are, 1. *The Bone of the Forehead*. 2, & 3. *Bones of the fore part of the Head*. 4, & 5. *Bones of the Temples*. 6. *The Bones of the hinder part of the Head*. 7. *Os Sphenoides*. 8. *Os Ethmoides*.

The *upper Jaw* consists of eleven Bones, to wit, five of each side, and one common; of these,

1, 2. *Os Zygomaticum*. 3, 4. *Os Lachrymale*. 5, 6. *Os Maxillare*, 7, 8. *Bones of the Nose*. 9, 10. *Bones of the Palat*. 11. *Vomer*.

The *under-Jaw* hath only one Bone, except the Cavity for the Teeth, of which are numbered 32.

Four *Fore-Teeth*, two *Dogs* or *Eye-Teeth*; all the rest are Grinders.

In the Internal parts of the *Ear* are four Bones, which

which are called, 1. *The Hammer.* 2. *The Anvil.* 3. *The Stirrup.* 4. *The round Bone.*

The Mouth hath only one Bone, called *Os Hyoides.*

The Neck is compoſed of ſeven *Vertebra's*; of theſe, 1. Is called *Atlas.* 2. *Epiſtropheus.* 3. *Axis*, the reſt want Names.

The Bones of the Breaſt, in the upper parts, are, The two *Collar-Bones*; on the ſides, fourteen *true Ribs*, ten *Barſtard*, in all 24. On the fore-part, the *Sternum*, with the *Sword-like Cartilage.*

In the upper part of the Back are two *Shoulder-Blades*; in the middle twelve *Vertebra's.*

The hinder part of the *Abdomen* exhibits five *Vertebra's* of the Loins, to which are joyned the *Os Sacrum*, and to it is joyned the *Os Coccygis.*

On the ſide of *Os Sacrum* there is the *Os Innominatum*, or Bone of the *Hip*, which is divided, 1. Into *Os Ilium*, which is the greateſt. 2. *Os Iſchium*, the loweſt. 3. *Os Pubis*, in the fore-part.

The Arm conſiſts of only one Bone, which is called the Shoulder-Bone.

The *Cubit* of two, the uppermoſt of which is the *Ulna*, the loweſt, the *Radius.*

The *Metacarpus* contains eight Bones, to which as yet there are no Names given; the *Carpus* four.

The *Fingers* 10, each of which conſiſting of three Joynts.

Beſides theſe, about the Joynts of the Fingers, are found the *Oſſa Seſſamoidea*, 10, 12, 15, or 20.

The *Thigh* hath only one Bone.

The *Leg* conſiſts of two, one of which is the innermoſt, called *Tibia*; the other, which is outermoſt, the *Fibula.*

Between

Between *these*, and the Bone of the Thigh, is Placed forwards, the Knee-Bone.

The *Tarsus* hath seven Bones, which are, 1. *Tarsus*, or, *Astragalus*. 2 *Calx*, or the *Heel-Bone*. 3. *Os Naviculare*, or *Cimbiforme* 4. *Os Cuboides*, or, *Tessera*. 5, 6, 7. *Ossa Cuneiformia*, or *Sphœnoidea*.

The *Metatarsus* hath five Bones.

The Bones of the *Toes* are 14; for there's only two in the great Toe.

The *Ossa Sesamoidea* are found here also, 10, 12, sometimes 15, or 20.

Chirurgical Consideration.

The Bones are subject to many Diseases. *Fractures* and *Dislocations* are already discoursed of, as also *Putrefaction*: But seeing there may be several wayes produced, we will declare those which are chiefly worth our consideration.

Preternatural Humors, by what cause soever, either General or Particular, penetrating the Bone, sometimes produce an *Ulcerous Excrescency with moistness of the Bone*; sometimes a *Cancer of the Bone*, to wit, *Spina Ventosa*, effects necessary to be distinguished; which because no Physician hath made it his business to describe, I will impart that which Reason and Experience hath taught us.

The cause of an *Ulcerous excrescency, with the Humidity of the Bone* (which effect is called by the *Dutch*, *een Beensuygter*) is preternatural Phlegm, depriving the Bone of its temper and hardness; the flesh cannot be said from this soft foundation to keep also its Natural state; but its nourishment passeth into soft spongy flesh, which by degrees encreaseth, and at length causeth an Ulcer; from

whence the Tendons, Ligaments, and Nerves are corrupted, and the whole Member subject to danger.

In this case you must not flatter your self, that Medicines can effect any thing before you come to the bottom, that is, the Bone it self: And the Bone being made sound, the Ulcer will be cured, and the flesh return unto its natural constitution. It is therefore necessary to make Incision, even down to the Bone it self, and if there be a great excrescency, *extirpate it*; and if it be observed to rise again, apply an *actual Cautery*, alwayes consideration being had of the Bone.

Remedies proper against Putrefaction of the Bones, are already, both by us and others, sufficiently described. To take away the *Excrescency* of the *flesh*, Oyl of Vitriol, Oyl of Antimony, Spirit of Vitriol, *Ung. Ægyptiacum*, *Fuscum* of *Felix Wurtz*, are very good; and this Powder is excellent.

Take the Restaurative Powder, an ounce; white Vitriol, a dram; prepared Arsnick, two drams: Mix them.

Sprinkle it upon the proud Flesh, laying over it a drying Plaister, and it will make a thick Eschar, without great pain, which may be taken off the next day.

2. The *Cause* of a *Cancer* of the *Bone* (by the *Dutch* named *een Beenvreeter*) is a sharp Humor, first corroding the Bone, then making its way through the *Periostium*; then follows an Ulcer of the Flesh and Skin, incurable, before the Bone be made sound; its Orifice is very little, the edges are pale, the Matter that flows forth, is thin, the flesh soft, and somewhat swell'd, at least (as we have spoken

ſpoken in an *Ulcerous Excreſcence*) encreaſeth of its own accord.

Here alſo is Inciſion neceſſary, made according to the length of the Part, to the Bone it ſelf; forthwith muſt be applied thoſe things that *correct Putrefaction*, to wit, *Euphorbium*, Spirit of Vitriol mixt with Spirit of Wine, *&c.*

I have not only once experienc'd the Powder of Turpentine hardned by boiling, to be of great virtue, mixt with *Ung. Fuſcum* of *Felix Wurtz*, or *Ægyptiacum*; an *actual Cautery* is very convenient: The Cure alſo will be accelerated, if inſtead of Tents made of Lint, you uſe Elder-pith, becauſe this inbibet the ſharp and thin Humors, by which the action of Nature is promoted.

Seeing that for the moſt part theſe Diſeaſes ariſe from the diſtemperature of the whole Maſs of Blood, and when one Cancer is almoſt cured, another appears in ſome other place, therefore 'tis highly neceſſary to have regard to the whole Body: For which purpoſe, the following, or the like Medicines may be taken.

Take Roots of Comfrey the great, Oſmund Royal, *China*, *Sarſaparella*, of each an ounce; Guaiacum-Bark, two ounces; Rhubarb, ſix drams; Senna, ten drams; Agarick, ſix drams; Cloves a dram; Cinamon, two drams: Infuſe them 24 hours in a ſufficient quantity of Barley-water, then boil them with a gentle fire, and to two quarts of the ſtrained Liquor, add of Syrup of Comfrey of *Fernelius*, four ounces: Make it into an Apozeme.

Let the Patient, of a middle age, take three, four, or five ounces; it purgeth gently, forwards the Cure, and preſerves from further miſchiefs.

3. The

3. The *Bones* alſo are ſubject to certain Tubercles, called *Tophs* and *Nodes*. Theſe for the moſt part are the Symptoms of the Pox. I ſhall only ſet down here ſome External Medicines, approved by long Practice.

Take Oyl of Venice-Turpentine, of *Euphorbium*, of *Guaiacum* diſtilled, of each two drams; *Crude Opium*, half a dram: Make it into a Liniment.

Or,

Take Maſtick, Male-Frankincenſe, of each two drams, *Ladanum*, half an ounce; Quickſilver extinct in Turpentine, an ounce: Crude Antimony, three drams; Crude Opium, a dram; Venice-Turpentine, as much as ſufficeth to make it into a Plaiſter.

Or,

Take the Juice of Houſleek, Henbane, Celandine the greater, of each a dram; Mans-fat, three drams; Oyl of White Lillies, Camomile, of each two drams; Boil them to the conſumption of the Juices, afterwards add of Mercury ſublimate, a dram and ſcruple; Venice-Sope, two drams; Crude Antimony, three drams; Mummy, *Opium*, of each a dram; *Ladanum* and Wax as much as is ſufficient to make it a Plaiſter according to Art.

4. Moreover it is to be obſerved, that no *Fat*, or *Oyly Medicines are to be uſed to the Bone*, except they are extream drying, or that by Diſtillation, have loſt all their Unctiouſneſs.

CHAP.

CHAP. IV.

Of a Cartilage.

A *Cartilage is a similar, spermatick Part, drier and harder than a Ligament, but moister and softer than a Bone, rendring the Articulation the more pliable, and defending several Parts from external injuries.*

Difference] Some are *softer*, especially about the Joynts; others *harder*, and differing not much from the nature of a Bone.

'Tis nourished by *little Arteries*.

It is endowed neither with *Nerves*, nor *Membrane*, and by consequence without sense.

Its use is to facilitate motion, and to defend some Parts from external injuries, whereupon it is scarce subject to any.

Chirurgical Consideration.

Not seldom are the Cartilages, together with the Bones, both corrupted and cured; other particular Diseases it scarce hath any, besides too great a *hardness* or *softness*: Of both which we will give Examples,

1. The *Epiglottis* sometimes is so indurated, as that it not only deprives of Speech, but also hinders the Patient from swallowing, except a great piece; for Drink and all other liquid things pass into the Wind-pipe, as not being well closed by the stiff *Epiglottis*. This Disease is incurable.

2. The

2. *Glottis*, or Chink of the *Larinx*, either from Meat, or Drink, or Medicine, is ſometimes ſo ſtraight cloſed together, as the Patient cannot make any noiſe; this we remedy by the following Medicines; Purging and Bleeding, if neceſſary, having gone before.

Take Milk, ſix ounces; Yolk of an Egg; White Sugar, three drams: Mingle them; let the Patient take often a ſpoonful or two.

Or,

Take Frankincenſe, Mirrhe, of each a ſcruple; Eaſtern Saffron, half a ſcruple; Juice of Liquoras, a dram and an half; Gum Tragaganth, two drams; Sugar, as much as ſufficeth to make them into Troches, alwayes holding one of them in the Mouth, and ſwallowing them down.

I deem thoſe Anatomiſts to have committed a great Error, who have aſcribed this Malady to be an *Inflammation of the Larinx*; although I deny not, but that the Cartilages may be inflamed, and alſo corrupted; yet 'tis certain, that which they have ſet down, is not of the Cartilages, but of the neighbouring Glandules, and of the fleſhy parts of the Jaws; for it would not be ſo frequently cured, becauſe an Inflammation and corruption of the *Larinx* I always eſteemed a mortal Diſeaſe.

2. The *Sword like Cartilage of the Breaſt* is oftner than Practitioners take notice of, unnaturally *bent inward*, from *Humors flowing* in too great quantity; and ſo inclining with the point inward, preſſeth the Stomach, from whence comes a diminution of the Apperite, a Vomiting of what is taken in, with a continual pain of the Stomach, and

and a wasting of the whole Body; 'tis easie for an Anatomist, by the touch to apprehend this Malady, and in the space of few hours to cure it; for otherwise men are miserably troubled for many years.

'Tis *corrected* by a large-mouth'd Cupping-glass, outwardly applied upon the depressed Cartilage, and being there fixt, let it remain, till breathing is hindered; then suddenly remove, and the Cartilage oftentimes at the first time, returning again into its natural place; which if it appears not to do, the Chirurgeon must repeat this Operation once or twice; then having embrocated the Part with Oyl of Roses, and Myrtles, apply this Plaister to the Part, which must remain there several dayes.

Take Bistort-Roots, Cypress Nuts, of each a dram; Mastick, Frankincense, of each half a dram; Balaustians, a scruple; Oyl of Nutmegs Express, one dram and an half; Naval Pitch, and Turpentine, of each enough to make it into a Plaister.

CHAP. V.

Of Ligaments

A *Ligament is a Similar, Spermatick, dry part, adhering firmly to the Bones, tying the parts of the Body mutually together.*

Difference.] Some are *Broad* and *Membranous*, some *Round* and *Nervous*. 'Tis here to be observed,

ved, that the Names *Membranous* and *Nervous*, are much used both by Writers and Practitioners, and hath deceived many of them; for 'tis requisite to know that here it hath regard only to their external form, not their internal essence; for the Ligaments, both the Membranous and the Nervous are void of Sense, which they would not be, if they were compoled of their true substance of Nerve or Membrane.

There is no Ligament *hollow*, if you except the slender *Ligaments* of the *Womb*; and are all destitute likewise of *Sense* of *Motion*, as from themselves.

Use is to connect the parts of the Body, especially the Bones, and preserveth them from continual Luxation.

Chirurgical Consideration.

1. Ligaments hurt, by reason of their want of sense, seldom draw other parts into consent, and by the use of drying Medicines, are easily cured. I cannot but again in this place (taught by Experience) commend the *Restaurative Powder*, of which this is the Description.

Take Roots of Comfrey the greater, Aloes Succotrine, *Calcis vivæ*, of each two ounces; Mastick, Mirrhe, Mummy, of each two drams; Precipitate, two ounces: Make it into a Powder.

Here diligently at the first time is the weak heat of the Ligaments to be considered, seeing it may give occasion to a copious collection of Humors, and other grievous Symptoms.

2. The Ligaments also are not seldom *Relaxt*: Yea, although the ignorant do contradict, sometimes

times they are so much extended that they may give way to a Luxation, which the Sciatick pain hath more than once given us example of; in such a case, external Bleeding and Purging profit much; outwardly the Application of corroborating and discussing Topicks: The following Plaister is excellent.

Take Stiptick Plaister of *Crollius*, an ounce; Oyl of Earth, of Tiles, of each a dram: Make it into a Plaister to be spread upon Leather.

CHAP. VI.

Of Membranes.

A *Membrane is a Similar, Spermatick Part, broad, soft, dilatable, white, investing the Parts, and carrying sense to them.*

Difference. Some are very *thin*, others *thick*; some *fleshy*, but for the most part not.

The Parts which invest, are properly call'd *Membranes*, those which contain the Humors, *Tunicles*; and those which cover the Brain, *Meninges*.

It is endued with *sense* from it self, for all Membranes are sensible; yea, the Nerves themselves owe their sense to the Membranous substance of them.

Membranes therefore only are the true Organs of *feeling*, they serving the Animal Spirits to this purpose.

Use is, 1. To invest the parts of the Body. 2. To defend it from injuries. 3. To keep them united.

united. 4. To ſtengthen them. 5. To give them ſenſe. 6. To cloſe the Mouth of the Veſſels, that the Nutrious Blood be not carried too ſuddenly into the Part, or out of it, into the Vein it ſelf. 7. To ſeparate the Parts.

Chirurgical Conſideration.

The *Membranes* being ſo very *ſenſible*, they cannot bear ſharp Medicines; *they are not endowed with great quantity of Blood*, whence when they ſuffer a ſolution of continuity, they are not eaſily united again. But I have obſerved oftentimes that by the Muſcles, and the aſſiſtance of the Quittour, they are joyned together, as in the Bladder it ſelf, whoſe Wounds and Ulcers otherwiſe are eſteemed incurable.

CHAP. VII.

Of Fibres.

A Fibre is a Similar, Spermatick Part, diſperſed through the skin, fleſh and Membranes, to make them the ſtronger, and being naturally diſtended, to contract again into the ſame manner.

Differences are, *right*, *oblique* and *tranſverſe*, and ſome *round*; the *right* attract, the *oblique* thruſt forth, *tranſverſe* retain, *round* conſtrain; but this they do not ſo by their own ſingular virtue, as by the common virtue of the Member which they ſerve, and from whom they have their ſenſe and nouriſhment, for of themſelves they are ſenſeleſs.

Uſe, is, to ſtrengthen the Membranes, Skin, and

and Muſcles, and when dilated, to reduce them into their natural ſtate.

Whether the *Blood* it ſelf hath *Fibres*, as many have delivered, and as it ſeems very probable to us, ſhall be explained in another place.

Chirurgical Conſideration.

Theſe offer nothing worthy conſideration, except that, when they are wounded, the conſolidation of the Fleſh and Skin is the longer, and there is a greater ſtiffneſs of the Muſcles about the place, and makes them difficulter to contract and extend. The *Ductus* of the Fibres is diligently to be obſerved by them which are to make any curious Inciſion.

CHAP. VIII.

Of Veins.

A *Vein is a Similar, Spermatick, Membranous, long, hollow Part, every where joyned by* Anaſtomoſes *to the Arteries, receiving the Blood, wanting further Concoction from them, and carrying it to the heart and Liver,*

Difference.] Veins of a fourfold condition are found in the Body.

1. *Vena Cava.* 2. *Vena Porta.* 3. *Vena Pulmonalis.* 4. *Vena Lactea.*

Of the laſt of which, a more convenient occaſion will be offered to treat of in the following.

The *Vena Cava* and *Porta* take their beginning from the Liver. There are thoſe which would

have them come from the heart, from a weak Argument taken from unborn Embrio's. But where I find many Branches inserted in the Liver, few or none in the Heart; yea, I have observed, that it hath not entred into the Heart it self, but only to be joyned to its right Auricle: I rather embrace the old Opinion, willingly granting those honours to the Liver that I think belongs to it.

That the Roots of the Vena Cava and Porta were united by mutual Insculations, the old Anatomists perswaded themselves, but the curious Inquisition of the Moderns hath both found out and clearly demonstrated, that they mutually touch one another, but not so united, that the Blood can pass out of one into the other; for the extremities of the foresaid Vessels, by means of the *Parenchyma* of the Liver, do so mutually consent, that Milk or any liquid thing cast into the *Vena Porta* with a Syringe, finds an easie passage into the *Vena Cava*, without either any injury of the Veins or the Parenchyma. Concerning which, read *Glisson. Anatom.* of the Liver, *pag.* 272.

Veins have only one *Tunicle* with many *Valves* within, especially in the external Joynts.

They are *nourished* with Blood from the *little Arteries*, not that contained within themselves.

They are endowed with *feeling*, both from themselves, and sometimes from the Nerves.

Use is, to receive the Blood not sufficiently elaborated from the Arteries, and return it to the Heart and Liver, there to be more perfectly concocted.

For the better Methods sake in the following, we must be forced to describe all Veins here particularly, and divide them into their Branches.

Vena

Vena Cava taking its beginning in the Liver, as is before said, is separated into the *ascending Trunk*, and *descending*.

The Ascending, which is the greater, perforates the Diaphragm, and is divided into four Branches: of these,

1. *Phrenica*, which dispersеth it self through the *Diaphragma* and *Pericardium*.

2. *Coronaria*, appropriated to the Basis of the Heart, proceed from the Trunk it self, after it hath penetrated the *Pericardium*, and inwardly united it self by a large fleshy Orifice to the right Auricle of the Heart.

3. *Azygos*, or *sine pari*, coming from the right side of the same Trunk, when ascending, it hath passed the upper part of the *Pericardium*, affording chief Branches to the eight lower Ribs, then about the fleshy appendices of the Diaphragm, it enters the Cavity of the lower Belly, where, on the left side 'tis inserted into the Emulgent Vein, on the right into the Trunk of the *Cava*.

4. *Subclavia*, from whom comes forth several Branches which go both upward and downward: The Superiors are,

1. *Musculs Superior.*

2. *Jugularis, externa & interna*; *that* on both sides (sometimes single, sometimes double) goes to the Neck, Head and Face; *this* to the thick Meninx of the Brain, to whose third Sinus its greater Branch is united.

The Inferiors are,

1. *Intercostalis*, serving the four upper Ribs, and their Intercostal Muscles.

2. *Mammaria*, which is carried to the Breasts.

3. *Mediastina*, which goes to the Mediastine and Thime.

4. *Cervicalis*, which goes to the Neck.

5. *Muſcula inferior*, which goes to the Muſcles of the Neck.

6, 7. *Thoracica*, *inferior* and *ſuperior*, which goes to the Muſcles of the Breaſt.

The Subclavials being come out of the Breaſt, are called *Axillares*, then go to the Arms, where they are divided into 3 great branches, which are,

1. *Cephalica*, in the Hand, between the little Finger and its next; 'tis named *Salvatella*: Its Branches are variouſly mixt with the Branches of the Median.

2. *Baſilica*, or Liver-Vien.

3. *Mediana*, which proceeds with others branches from the *Baſilica*.

The deſcending Trunk, which is the leſſer, and is undivided till it comes to the fourth *Vertebra* of the Loins, then it communicates,

1. *Adipſoſa*, to the Membranes of the Kidneys.

2. *Emulgens*, to the Kidneys themſelves.

3. *Spermatica*, to the Teſticles.

4. *Lumbares*, two, three or four, to the Loins, and to their *Vertebra's*.

Nearer to the *Os Sacrum*, it is ſeparated into two Branches called *Iliaci*. Before they go to the Feet, the Trunk it ſelf preſents,

1. *Muſcula Superior*, which goes to the Muſcles of the Loins and *Peritonæum*.

2. *Sacra*, *ſometimes ſingle*, *ſometimes double* to the *Os Sacrum*.

3. *Muſcula Media*, to the Buttocks.

4. *Hippogaſtrica*, to the Bladder and its Neck; to the Sphincter *Ani*, to the *Penis*, and to the neck of the Womb.

5. *Epigaſtrica*, to the Muſcles of the *Abdomen*, and to the *Peritonæum*.

6. *Pudæ-*

6. *Pudenda*, to the privy Parts.

7. *Musculi Inferior*, to the joynt of the Hips.

The Iliack Branches, as soon as they have left the Cavity of the Belly, are call'd *Crurales*.

From these proceed,

1. *Ischiatica minor*, which goes to the Skin, and Muscles of the Hip.

2. *Ischiatica major*, to the Hip, then to all the Toes.

3. *Proplitea*, to the Ham.

4. *Suralis*, to the Muscles of the Calf of the Leg.

5. *Saphena*, to the Knee, Ankle, and to the upper part of the Foot, and to the great Toe.

The *Vena Cava*, where it comes out of the Heart, receives three *Valves*, called *tricuspidales*, looking internally, for this purpose, that the Blood may freely enter into the Heart, but to hinder its return.

The *Use* of the *Vena Cava* is, to receive the cruder Blood from the Arteries, and remit it to the Heart.

Vena Porta, much lesser and looser than the *Vena Cava*, ariseth from the Umbilical Vein, and with many Roots is inserted into the Liver; without the Liver, it is divided into Trunk and Branches, all which are distributed into several parts contained in the lower Belly.

From the Trunk proceeds,

1. *Gastrocpiploïa*, which goes to the Caul and Stomach.

2. *Intestinalis*, to the intestine *Duodenum*.

3. *Cystica Gemella*, to the Gall.

4. *Gastrica minor*, to the left side of the Stomach.

Then this Trunk is divided into two great branches, the Splenick and Mesenterick.

Ramus Splenicus, sometimes joyning to the Sweet-bread, sometimes passing through it, divides into four little Branches, as soon as it hath left it; which are these,

1. *Vena Gastrica major*, which goes to the Spleen communicating from thence three or four small Veins to the Stomach: These being blown up in living and dead Bodies, manifestly declare, nothing at all can enter into the Cavity of the Stomach, and so by consequence no Humor coming from the Spleen, as long since Learned men have imagined, taught and writ, seeing they terminate in the Coats of the Stomach, and open not into the Cavity it self.

2. *Epiploica dextra.* 3. *Coronaria Stomachi.* 4. *Epiploica sinistra.*

Mesentericus ramus is also divided into four others; of these, the

1. Retains its old name, and is distributed with fourteen or more Branches through the Mesentery.

2. *Vena Hæmorrhoidalis*, and goes to the Spleen, the Womb, and the right Intestine.

3. *Vena Cæcalis*, to the blind Intestine.

4. *Ramus Mesocolicus*, and goes to the Intestine call'd *Colon*.

The *Use* of the *Vena Porta* is, to take the Blood not sufficiently elaborated, from the Arteries, and carry it to the Liver, for the perfecter concoction, and for the separation of the Choler.

Vena pulmonalis (which the Ancients corruptly call'd *Arteria venosa*, seeing that it hath but only one Tunicle, beats not of it self, nor returns the Blood)

Blood) coming out of the left Ventricle of the Heart, with a wide Orifice goes to the Lungs, to receive the more imperfect Blood from the Pulmoniack Artery, and carries it to the Heart.

About its egress from the Heart, it hath *two Miter-like Valves*, hindring the regress of the Blood to the Lungs.

Its *Use* is, to carry the Blood received from the Pulmoniack Artery, into the left Ventricle of the Heart.

Chirurgical Consideration.

1. We have in another place treated of the *Wounds of Veins*; we shall only add, that if the bandage, by which you stay the bleeding, be bound too hard, it will easily induce a Gangrene.

2. We have admitted only four general *Indications of Bleeding*; to wit, for the *Refrigeration, Imminution, Revulsion and Derivation of the Blood*; but special Diseases requiring one Vein to be chosen before the other, which are these following; in a *Delirium* and great pain of the Head, the Vein of the Forehead or *Praparata*, or *Vena puppis*, may be cut; sometimes the *Temporal* or *Saphena*.

In an Inflammation of the Eyes, the *Cephalica*, and if you desire to evacuate from the whole Body, the *Basilica* or *Mediana*.

In a *Quinsey*, the *Ranina*, which must be but with a little Incision, seeing we cannot scarce by any means stop the Flux of Blood, and sometimes also the *External Jugular*.

In a *Pleurisie*, the *Basilica* of the affected, not opposite side; here is requisite the greatest Circumspection; for under it lies the Tendon of the Muscle Biceps, and near it the Artery.

In anger, fear, or any Casualty, &c. the *Mediana* or *Basilica*.

In Chronick Diseases, and quartane Fevers, the *Salvatella*, especially in the Full and New Moon.

In Women that lie in, and in suppression of the *Menses*, the *Saphena*; In the *Sciatica*, the *Ischiatica*.

CHAP. IX.

Of Arteries.

AN Artery is a Similar, Spermatick, Membranous, round, cavous Part, joyned every where to the Veins, by the assistance of its oscultations, containing the Nutritious Blood with the Vital Spirit carrying it to all the Parts of the Body.

Difference is twofold, the *great Artery* or *Aorta*, and *Pulmoniack*.

The great Artery comes from the left Ventricle of the Heart; which except in the Brain and other softer parts, every where else consists of a *double Coat*; the outermost of which is of the thickness of the Veins; but the inmost is five times thicker, lest by continual pulsation about the hard and solid Parts, it might incur an incurable Rupture.

It receives three *Valves*, call'd *Sigmoides*, looking outwardly.

Coming out of the Ventricle of the Heart, with a great Orifice before it perforates the *Pericardium*, it affords to the Heart it self the *Coronary Artery*; when past the *Pericardium*, it is divided

ded into the *Aſcending* and *Deſcending Trunk*.

The *Aſcending Trunk*, which is the leſſer, reſting upon the Wind-pipe, is ſeparated into the *two Subclavials*, from which, being yet within the Breaſt, proceeds,

1. *Intercoſtalis ſuperior*, proper to the four upper Ribs.

2. *Mammaria*, to the Breaſts.

3. *Cervicalis*, to the Muſcles of the Neck.

4. *Carotis externa & interna*, proper to the Larinx, Tongue, Neck, Head and Brain.

When they have left the Thorax, they are call'd *Axillares*, and carry nouriſhment to the outward part of the Breaſt.

1, 1. By the *Thoracica ſuperior & inferior*. 3. By the *Scapularis*. 4. By the *Humeraria*.

Then they approach the Arm, where they accompany the Branches of *Vena Cava*, and are call'd by the ſame name as they are.

The *Deſcending Trunk*, which is the greater, being yet within the Breaſt, ſends

1. The *Intercoſtalis ſuperior*, to the eight lower Ribs.

2. The *Phrenica*, to the Diaphragm and *Pericardium*.

Then having perforated the Diaphragm, it communicates,

1. The *Cœliaca*, to the Stomach, from which proceeds the *Splenica* and *Gaſtro Epiploica dextra*.

2, 3. *Meſenterica ſuperior & inferior*, to the Meſentery.

4. *Emulgens*, to the Kidneys.

5. *Spermatica*, to the Teſticles.

6. *Lumbaris*, to the Loins.

7. *Muſcula ſuperior*, to the Muſcles of the Abdomen.

Then

Then at length it is divided into the two *Iliac* Branches: about this division exhibiting,

1. *Muscula superior.* 2. *Epigastrica.* 3. *Hypogastrica.* 4. *Umbilicalis.* 5. *Pudenda.*

Out of the Abdomen they change their names, and are call'd *Crurales*, and so they descend into the Feet, all along accompanied with the Veins, from whom they borrow their names.

Use is, to carry the nutritious Blood with the Vital Spirit into all parts.

Arteria pulmonalis (which the Ancients did falsly call *Vena Arteriosa*, seeing it hath Pulsation, is made up of a double Coat, and contains the Nutritious Blood) issuing out of the left Ventricle of the Heart, with a double Branch enters the Lungs, and is distributed through them by many little Branches, carrying to them the Nutritious Blood: And then what in the Blood is not sufficiently concocted into the Pulmoniack Vein, by whose means 'tis returned into the left Ventricle of the Heart.

It hath three *Valves* called *Sigmoides*, which look outward, lest the Blood that having entred it, should slide back again into the Ventricle of the Heart.

Its *Use* is, to convey the Blood out of the right Ventricle of the Heart, into the Lungs, by which they are nourished, and what remains above, then serves for their Nutriment, is brought back again by the Pulmoniack Vein into the left Ventricle of the Heart.

Here it pleaseth the curious Observers of Anatomy to take notice of (besides the eleven *Valves* which we have declared to be disposed in the four already named Vessels) that many others are found

found in the Heart, which as yet want any certain name.

Chirurgical Consideration.

In an *Hæmorrhage of the Nose*, the Blood flows from the Arteries, not Veins, which not only the colour of the Blood witnesseth, but also the great weakness which always follows such a Flux: I use to stay it after this manner;

First, Let a Vein be opened, then let there be applied in men, to the Testicles, in Women, to the *Hypogastrium*, a linnen Cloth four double wet in cold water; or let the face of the Patient be suddenly sprinkled with cold Water: Internally let there be exhibited now and then a spoonful of the following Mixture.

Take Plantain-water, two ounces and an half; Alexipharmick-Water, half an ounce; Cinamon-Water, three drams, Confection of Hyacinth, half a dram; Dragons-blood, *Lapis Hæmatitis*, of each fifteen grains; Julep of Roses, an ounce, *Laudanum Opiat.* two grains, Spirit of Vitriol, six drops: Mix them.

The following Water is also commended.

Take *Lapis Prunella*, half an ounce; Plantain-Water, six ounces; let it be divided into three Doses.

The manner of opening *Arteries*, delivered by the Ancients, is so dangerous and frightful, as that there is none of the Moderns, but what dislike it; yea, *Arteriotomy* hath been wholly rejected, had not the diligence of their Posterity found out other wayes: That which I (with others) have found

found alwayes to be the best of them, I will here set down.

Chirurgeons were wont to tie a Bandage about the Neck; but seeing when it is hard bound, it is very troublesome, it is better that the Ligature be made under the Arm-pits, which must be so straight that the Jugular Veins, and Carotide Artery may appear both by swelling and touch; then let the Arteries be compressed by the Thumb, a little below, where you intend to make the Incision; and being opened (which must be done by a steddy and strong hand) take forth as much Blood as is sufficient; which done, strew Astringent Powder upon the Wound, then put over it a double Linnen Cloth with a Plate of Lead, then bind it up with a convenient Bandage, and within five or six dayes space it will be perfectly well.

In the Head-ach, Madness, Epilepsie, great Inflammations of the Eyes or Ears, the *Arteries* of the *Forehead*, *Temples*, or those *behind the Ears*, are opened; as also the *Arteria puppis*, all of them being branches of the external Carotide.

In the Inflammations of the Liver and Diaphragm, the Artery between the *Thumb* and forefinger is opened; in palpitations of the Heart, either *that*, or the *Saphena* is to be opened.

Other Arteries are not to be opened, except a Bone lies under them, for fear of an Aneurism.

CHAP.

CHAP. X.

Of Nerves.

A Nerve is a Similar, Spermatick, Membranous, round, white, hollow part, ſerving for the carriage of the Animal Spirits to the Parts for Senſe and Motion.

The Nerves take their Original from the Brain, and are divided within the Skull into eight Pares; without the Skull, to wit, thoſe that come out of the Spinal Marrow, into thirty Pares, ſeven of which proceed from the *Vertebra's* of the Back, five from the *Vertebra's* of the Loins, ſix from the *Os Sacrum*.

The eight Pare within the Skull, proceeding from the Brain, are,

1. *Smelling pare*, which adheres to the Mammillary Proceſſes.
2. *Optick pare*, which is the greateſt, and united in the middle.
3. *The pare that moves the Eyes.*
4. *The Taſting pare.*
5. *The ſecond taſting pare.*
6. *The hearing pare.*
7. *Par vagum*, which is veſted with ſtrong Membranes; it deſcends through the Orifices of the Bone of the hinder part of the Head to the Throat, afterwards ſending Branches to the Neck of the Larinx, to the Muſcles of the Tongue, and *Os Hyoides*; then is divided of each ſide into the external and internal Branch.

The

The right External Branch, having sent some Branches to the Muscles of the Breast, makes the *right recurrent Nerve*; this contributes to the Voice, as also to the feeling in the *Pleura*, the Coat of the Lungs, the *Pericardium*, and to the upper Orifice of the Stomach, seeing all those Parts obtain Branches from it.

The left external Branch constitutes the left recurrent Nerve, which goes to the same Parts, as we have declared the right doth, being brought to the said Orifice of the Stomach, it is joyned to the right recurrent, and so goes to the lower Orifice of the Stomach, and to the lower part of the Liver.

The right Internal Branch sends Branches to each intercostal Muscle, then having perforated the Diaphragm, furnisheth all the parts of the lower Belly with a Nerve, ending about the *Os Sacrum*.

Of the left Internal Branch is the same distribution.

8. The Part moving the Tongue.

The Nerves have a *Cavity*, but so little, not to be distinguished by the sight, except in the Optick Nerves, and those of the *Pudendum*.

Use is, to carry the Animal Spirits for sense and motion of the whole Body.

Chirurgical Consideration.

The Cure of wounded Nerves and Tendons is so like, as it hath been more than once the occasion of confusion amongst the best Authors, therefore for the better distinction sake,

1. The frequent *contusion of the Nerves* by a *Fall* or *Blow*: the Skin having suffered a solution of continuity, there happens an Ulcer, and many other

other Symptoms, from the affluxion of Humors. It requires the *same Cure* we have proposed in another place, of Wounds of the Nerves.

But if the contused Nerve be not bare, which may be discerned from the greater and more continual pain than is usual in a simple contusion of the Flesh, the greatest care is, that the coagulated Blood be as soon as possible resolved; for if it should suppurate, the Nerve easily would putrifie; therefore let there be applied a Cloth dipt in one or other of the following Oyles, warm to the affected Part.

Oyl of Castor, Worms, Dill, Rue, Camomile, Rosemary.

Or, let this Fomentation be applied very hot with Spunges.

Take our Orrise Roots, two ounces; Leaves of Rosemary, Marjoram, Horse-Mint, of each half a handful: Boil them in white Wine for a Fomentation.

Or let the following Plaister be laid on:

Take Sow-bread Roots in Powder, two drams; *Species Diambræ*, one dram; Oyl of Castor, three drams; Turpentine, a dram; Plaister of Betony, an ounce; Virgins-Honey, as much as to make it according to Art into a Plaister.

Oyl of Lavender is excellent in this Case, if taken to the quantity of two drops, especially where Convulsions happen.

2. *The Nerves are not seldom obstructed with a pituitous and tough Humor*, from whence a *stupor of the Part*, and sometimes also a stiffness; these Symptoms I used to remove after the following manner, the whole Body, if occasion, being first purged.

Take

Take Gum *Caranna*, half an ounce; *Galbanum*, an ounce; Oyl of *Euphorbium*, a dram and an half: Make it into a Plaister.

Or,

Take Mans-Fat, Goose-Fat, of each an ounce; Oyl of Earth, three drams: Make it into a Liniment.

Let the Part affected be *annointed* with it Morning and Evening, then lay on the Stiptick Plaister of *Crollius*, or of *Ladanum* or *Diachilon* with Gums.

You will hasten the Cure, if you use *Internal Corroboratives*, which do wonderfully alter the Nerves, although these things properly belong to the Physitian, yet I think it convenient to prescribe this Decoction of great efficacy, of which, let the Patient take three or four ounces twice a day.

Take Roots of Piony, Sea-holly, of each half an ounce; Orrise, three drams; Leaves of Marjoram, Rosemary, of each an handful; Flowers of the Lime-tree, Lavender, and Lilly of the Valley, of each a pugil; the lesser Cardamomes, three drams; Nutmegs, a dram: Infuse them six hours in a sufficient quantity of White Wine, afterwards boil them, & to a quart of the strained Liquor, add three ounces of Syrup of *Stœchas*: Mix them.

There often happens through a *Chronick Disease*, or from a *Luxation* or *Fracture*, a *Contraction* of the *Member*, which is not to be ascribed to the Nerves, but Tendons. This is easily remedied by the use of Oyls and Ointments that have the property of mollifying the indurated Tendons, especially if there

there is to be used a daily extention, either by the Hands, Weights or Instruments.

Take Oyl of Camomile, Olives, Foxes, of each half an ounce; compounded Ointment of Marshmallows, an ounce, Capons-grease, an ounce and an half. Make it into a Liniment.

CHAP. XI.

Of the Flesh.

THe Flesh is a similar, bloody, soft, thick part, together with the Bones, to yield a strengthening to the Body, and to cover the spermatick Parts.

Difference] Flesh is threefold.

1. *Musculous.* 2. *Glandulous.* 3. *Viscerous.*

Musculous is soft, red, and is properly call'd flesh, and for these many ages hath come under the name of Muscles.

But yet a Muscle is not a Similar Part, but compounded of many others, to wit, Fibres, Tendons, Nerves, a Membrane, Veins, Arteries, that it might be a fitter instrument of voluntary motion, to which the Fibres, Tendons and Nerves do chiefly contribute.

It hath a Tendon in its beginning and end, sometimes round, sometimes broad, sometimes but one, sometimes double.

Its *end* is in that place where the Tendons are greater and more.

Its *Head*, or beginning where the Nerve is inserted, the *middle*, where the flesh swells out.

Use is, to promote voluntary motion, which

is *performed* after a three-fold manner.

1. When the *Contraction of the Muscle* is so, that the end comes to the beginning, and then its Antagonist is quiet.

2. When the *motion* is *Tonick*, so that being contracted, it remains for some time in the same condition.

3. When it relaxeth, so that it is restored into its former seat and quiet, by its Antagonist.

The Glandulous flesh is white, thick and spungy, formed of seed (from whence it cannot properly be call'd flesh) to this purpose ordained, 1. To prop up the Vessels. 2. To receive the superfluous Humidities, whence they are called the *Emunctories* of the noble Parts.

Some Anatomists make strange diversities of them, but it will appear to any one that diligently enquires into all the Glandules, that they differ not so much in substance, as in their use and Humor.

The Viscerous flesh, or the Parenchimick is red, hard, convenient to prop the Vessels, and to serve for many particular and various operations, this is the flesh of the Lungs, Heart, Liver, Spleen, which shall be treated of in their places.

Chirurgical Consideration.

The Muscles are subject to many Diseases, very many of which are of so little consequence, that they shall not be numbred here, some we have declared in another place: the following require consideration, oftentimes wonderfully exercising the patience and diligence of the Chirurgeon.

1. An *Atrophy* of the whole Body oftentimes comes from an Internal Cause: But if of the Fin-

ger,

ger, Hand, Arm, Foot, for the most part from an External Cause. Thus a *Fracture*, *Luxation*, *Contusion*, *Tumor*, *too hard Ligature*, and the like, so vehemently compressing the Veins and Arteries, that it hinders the free passage of the Blood to the Parts, upon which happens an Emaciation; for where the Vessels are wholly divided or stopt, so that the least quantity of Blood cannot be carried to the Parts, there follows not a wasting of the Part, but a Mortification; in this Case the External Causes must be removed: And care is to be taken that the Blood may again be carried to the Part: Here *chafing* the Part, and the use of *Nettles* (as many will) is good; the Chymists commend much *Alumen Plumosum*; all hot Oyls likewise are here good; and this Ointment is of excellent virtue.

Take fresh tops of Savin, Juniper, Lovage, of each two handfuls; Camomile-Flowers, Juniper-berries, of each two handfuls; Oyl of Bayes, White Lillies, of each twelve ounces; Hogs-grease, three ounces; Dogs-grease, an ounce and half; *Aq. vitæ*, two ounces: Boil them to the consumption of the moisture; then add to the express'd Liquor, Oyl of Spike, three drams; Juniper, a dram; Mustard-seed in Powder, half an ounce; Roots of Pellitory of *Spain*, Long-Pepper powdred of each two drams; Yellow wax, as much as is sufficient to make it into an Ointment.

Or,

Take *Pulvis Amianti*, three drams; Roots of Pellitory of Spain, a dram and half;

Castor, *Euphorbium*, Oyl of Earth, of each two drams; Gum *Ammoniacum*, an ounce and half; *Ladanum* and Wax, as much as sufficeth to make it into a Plaister.

2. The true reason of the generation of Wens, in my opinion, is this; The mouths of the Arteries appointed to carry nourishment to the Muscles, sometimes are more opened than they ought to be, whether it be by Fall or Blow, or from an internal Cause, especially in Plethorick People, and in Parts disorderly moved, the native heat converts the extravasated Blood into Flesh: But seeing the Member requires not so great a quantity of nourishment, it increaseth into a preternatural swelling; and if this Blood be impure, Choler produceth Pain, Phlegm, Viscousness, Melancholy, a Cartilaginous hardness; and 'tis to be attributed to these Humors, that this preternatural flesh is more yellow, white or livid.

'Tis seldom included in a proper Tunicle, except where Phlegm is its greatest Cause, and then those Tumors are generally in the Neck: The Veins grow big according to the increase of the Tumor, so that under the Skin they appear as thick as ones Thumb.

'Tis not in it self malignant, yet by ill applications may be easily made so: Air is very hurtful, if the Tumor be exposed to it.

For the most part the best Remedies are here used to little purpose, on the contrary, the Tumor more and more increasing. You cannot promise any Cure, except you take it away by a Thred, Knife, or both.

In the beginning, the *Medicines* that are to be applied, ought to be very *astringent* and *repelling*, the

the Part is gently to be rouled, having applied to it, either a Plate of Lead, or a Dichalcitheos Plaister, or of Frogs with Mercury, or the following;

Take Pomegranate-rinds, Bistort-roots, of each one dram; Scales of Iron, Quick-silver, Burnt-Lead, of each two drams; Bole-armenick, *Lapis Hæmatitis*, of each a dram and half; Turpentine, Wax, as much as is sufficient to make it into a Plaister according to Art.

In the mean time, *Purging*, *Bleeding*, *Scarification*, and the *Application* of *Leeches* are not to be neglected. *Sweating*, also *Watchings* and *Abstinence* profit very much.

But if the Tumor yields not to these Remedies, but daily increaseth, *Suppuratives* are to be applied; but if these within few dayes effect nothing, and the Tumor continuing in the same state, an *actual Cautery* may be used: which, let not the contrary Opinions either of Chirurgeons or standers-by hinder; for by its use, the increase of the Tumor will be stayed for a long time; yea, sometimes the Disease will be wholly eradicated.

But if the Flesh begins to repullulate again beyond expectation, the Surgeon ought not to defer to endeavour either by a *Thred* or *Knife* its extirpation; the *Thred* being small and strong, must be twice wound about the neck of the Tumor, and tied with a double knot, which must be straightned the same day, and so every day until the Tumor be deprived of its colour, sense and life, which is within seven or eight dayes; then 'tis to be taken off with a crooked Knife, which is very easie to perform, seeing neither any great pain or flux of Blood is to be feared: If the *Thred* be

wet in Mercurial or Arsenical water, it hastens the mortification of this Tumor: But in this Operation, a Phlegmatick Body is required, for in other Bodies pain and inflammation do so much afflict the Patient, that 'tis seldom that the *Thred* in a short time should take them off, yet the Chirurgeon may, to lessen the Symptoms, and to cool, annoint with a Feather the Part which the *Thred* toucheth, with white camphorated Ointment, of Roses, or the like, continually putting the Patients in mind how that others bear it more quietly.

But if you design to use a *Knife* only, the whole Tumor must be endeavoured to be taken away, except you will consume the remaining by Medicines, which is very rarely effected, besides the Chirurgeon must have care that he divides not the greater Vessels, lest there follows a Flux of Blood not to be stopped.

3. The *Viscerous Flesh* belongs rather to the Physitians care, than the Chirurgeons.

4. Of the *Glandulous flesh* we have treated particularly in several places. In general 'tis to be noted, 1. That the *Glandules* are of a *cold temperament*, therefore require hot Medicines, but very ill suffers cold. 2. The *Tunicle investing them, being eroded or divided*, the skin cannot be consolidated, before the whole Glandule, together with its Tunicle, be consumed with the Ulcer. 2. If *Corrosive* Medicines cure not the Ulcers of the *Glandules*, within the space of few weeks, no hope remains of a sound Cure, because of the continual Flux of Humors: And this is the reason why we are for the most part compelled to take them away by Incision.

CHAP.

CHAP. XII.

Of the Skin.

THe Skin is a similar, spermatick part, having some Blood mixed with it, reddish, white, loose, investing the Body, and serving for feeling.

'Tis covered by a *Scarf-skin*, for the greater defence, every where perforated with *Pores*, to give vent to the useless Fumes and Vapors; endued likewise with manifest *Perforations*, as are the Mouth, Nostrils, Ears, *&c.* whose use is sufficiently known.

It hath *Cutaneous Veins and Arteries*, as also *Nerves*.

Its *Use* is, to cover the Body, as moreover it is the Instrument of feeling.

Chirurgical Consideration.

1. The *Skin* being discoloured by the Jaundies, Freckles and other Spots, this Water renders again *smooth* and *fair*.

Cosmetick Water of Minsicht.

Take white Frankincense, Sugar-Candy, of each two ounces; white Hermodactils, Florence-Orrise, Venice-Borax, of each an ounce; Salt of Tartar, Burnt-Ivory, Camphire, of each half an ounce; Flowers of white Lillies, of the white Water-Lillies, of the white Garden-Mallows, of each three handfuls; Virgin-Honey, three ounces; Goats-Milk, two quarts; Bean-flower-water,

and white Rose-water, of each a pint and half; white Lilly-water, and *Solomons* Seal-water, of each a pint; being mixt, let them be distilled in *Balneo Mariæ*.

2. *Scars* remaining after the Small Pox, Wounds or Burns, we take away by the following Medicines, if deep and great, first, having used Excedents, then Sarcoticks.

Take Venice-Borax, three drams; Camphire, 1 scruple, Oxes Gall, a dram; Oyl of Mirrhe, two drams; Capons-grease, half an ounce: Make it into a Liniment.

Or,

Take Powder of the Roots of Snake-weed, of Orrise, of each three drams; Seeds of Melon blanch'd, of Raddishes, of each a dram, Burnt Eggshels, half a dram; Common white Chalk, 1 dram and half; Frankincense, a dram; Sugar-Candy, three drams; Gum Tragaganth dissolved in Rose-water, an ounce; Goose-grease, as much as sufficeth to make it into a Liniment.

3. *Scabs* blemishing the Skin, are sometimes moist, dry, spreading, eating, crusty, malignant; this difference is of so small consideration, that generals being well known, 'tis not difficult to one that well weighs every thing, to proceed aright in particulars.

Seeing the *Cause* of this Disease is a sharp, cholerick, serous, salt Humor, mixt sometimes with Phlegm, the often use of *Purging, Sweating and Vomiting, of Bleeding, Scarification, Leeches, Natural and Artificial Baths*, as also *of cooling, drying Medicines, and those that temper the acrimony of the Blood, Lotions* and *Unctions* are here very profitable; an Example of each I here give. A

A Purging Decoction.

Take Roots of Aſparagus, Graſs, Polypody, of each ſix drams; Liquoras, three drams; Leaves of Fumitory, Succory, of each an handful; Senna, an ounce and half; Rhubarb, half an ounce; Tamarinds, an ounce; Aniſeeds, two drams; Cream of Tartar, three drams; let them infuſe 24 hours in a ſufficient quantity of Whey, then boil them, and to a pint and half of the ſtrained Liquor, add Syrup *Dianicum*, three ounces: Make it into an Apozeme. Doſe, three ounces.

A Vomit.

Take *Oxyſaccharum Vomitivum*, Syrup of Roſes ſolutive with Senna, of each an ounce, Fumitory-water, as much as is ſufficient: Make it a draught.

A Sudorifick.

Take Flower of Brimſtone, Antimony, Diaphoretick, Salt of Holy-Thiſtle, *Sal Prunella*, of each a dram: Make it into a Powder, to be divided into ſix equal Doſes.

A Bath.

Take Roots of red Docks, Briony, of each ſix ounces; Leaves of Fumitory, ſix handfuls; Camomile Flowers, three handfuls; Bran, a pound; Brimſtone, two ounces; Nitre, an ounce; Alom, an ounce and half; common Salt, two ounces; Mix them.

In a grievous and rebellious Scab, the *Powder* of

of *Snakes* is excellent; this is the preparation of it; Take a Snake (in *March*, if possible, before it hath laid its Eggs) the Head and Tail being cut off, and the Skin stripe off, all the inward Bowels (except Toogue, Heart and Liver) thrown away, let it dry in an Oven moderately warm, to a Powder: The Dose from four grains to fifteen.

Vipers dried after the same manner, excel Snakes, and are commended in the Leprosie it self.

A Fomentation.

Take Burnt-Talk, an ounce and half; quick-Lime, two ounces; Litharge of Gold, half an ounce; Bole-armenick, an ounce; dry Tobacco-Leaves, three ounces; White-wine, a pint; clear Water, a quart: Let them boil a little, and keep the strained Liquor for use.

A Liniment.

Take Crude Brimstone, two drams; Venice-Sope, a dram and half; prepared Nitre, half a dram; Litharge of Gold, two drams; *Mercurius dulcis*, a dram and an half; White Camphorated Ointment, an ounce; Oyl of *Rhodium*, eight drops: Make it into an Ointment.

CHAP.

CHAP. XIII.

Of the Fat, Nails and Hair.

IT hath been long disputed, whether the Fat, Hair and Nails ought to be accounted Parts of the Body, or Excrements. I neither think them Excrements, nor Parts properly so call'd.

Not Excrements, for they are Bodies, enjoying with the rest Life and Nourishment, but not nourishing others, and are of singular use for the publick good.

They are not Parts properly so call'd, being destitute of any certain bounds, and have no particular operation: Fat nourisheth in Famine, the Hair and Nails, without injury to the whole, may be cut off.

Adeps, or *Fat*, *is a similar, soft, white, insensible part, made to preserve the Natural Heat, to help Chylification, to facilitate Motion, to moisten the Parts, and to nourish the Body in Famine.*

Hair is a similar Part, produced by the worst part of the Blood, covering some Parts, and in some manner adorning them.

'Tis outwardly *four square*, inwardly *hollow*, the variety of *Colour* it owes to the Temperament and Age of Men, to the Constitution of the Air or Countrey,

The Nail is a similar part, sprung also from the impurest part of the Blood, flexible, hard, defending the Fingers from external injuries, as also adorning them, Its Root is joyned to a Liga-

ment

ment, and is very sensible by reason of the neighbouring Tendons.

Chirurgical Consideration.

1. Blood wholly, or in part destitute of Fat, is not much to be commended; for its abundance constitutes fleshy, its unctiousness, fat Bodies, as where but little fat, lean; this fatness of the Blood dispersed into the parts of the Body, changeth into natural Fat more copiously in the cold parts, to wit, in the lower Belly, Breast, &c. than in the hot. These Signs may confirm our Opinion, as often as they are required from the Blood after the opening of a Vein; for the upper part of the Blood, which is erroneously taken by many, to be the Phlegm of the Body, and so the vitious part, oftentimes is the very best of it: This may be distinguished by the fire; for if it be fat, it will flame; if Phlegm, it useth to crackle; hence it comes to pass, that the Fat, when it is any obstruction in the cure of an external Disease, may be cut off without any pain, or other inconvenience.

2. The *Nails* are oftentimes subject to *clefts*, to be *rough*, and of *ill colour*; the *Cause* is a vicious *Humor*, or some External Accident; these may be cured by the often paring of the superfluity, and the applying the following Plaister.

Take Rosin, half an ounce; Turpentine, Frankincense, Mastick, of each two drams; Goats-Suet, Green-Wax, of each five drams: Make it into a Plaister according to Art.

Blood sometimes remains coagulated under the *Nails*, which may be discussed by this Plaister.

Take Roots of Crow-foot, of *Solomons* Seal, red Mirrhe, of each a dram; Gum *Sagapenum*,

an

an ounce; Oyl of Nuts, a dram: Make it into a Plaister.

For the *falling* off of the Nails, a *Finger-ſtall* may be prepared of Green Wax, *Ladanum* and *Ammoniacum*, &c.

3. The *ſhedding of the Hair* is a frequent evil; the cauſes of it, are *Burning Fevers*, *old Headachs*, *the Leproſie*, and *the French Pox*; and there is not to be expected any new in its room, before the Cauſe for ſome time hath been taken away; which being done, the following external applications may be made uſe of.

Take Southernwood, Maiden-hair, Mallows, Marjoram, of each one handful; Cummin, roots of Parſley, of Raddiſhes, Storax Calamit, and liquid, red Mirrhe, of each five drams; *Euphorbium*, *Cantharides*, of each a dram; Gum *Ladanum*, three ounces; Oyl of white Lillies, an ounce; Roman Nettle-ſeeds, half an ounce: infuſe them 36 hours in three quarts of fair Water, then diſtil them in *Balneo Mariæ*.

Or,

Take Aloes, a dram; Agarick, Coloquintida, of each two drams; Rockel-ſeeds, half an ounce; Salt of Camomile, two ſcruples: infuſe them twenty four hours in fifteen ounces of White-Wine, and keep the ſtrained Liquor for your uſe.

CHAP.

CHAP. XIV.

Of the Generation of the Blood, and its Circulation.

WE have hitherto treated of the Similar Parts, properly and improperly so call'd, from whom are the Dissimilars compounded. The Blood serves to their Conservation, as doth the Spirits to the Actions from thence proceeding; but how the Blood is generated in our Body, and how many Spirits are there found, is not as yet sufficiently understood by us. In this thing Writers differ among themselves, so that the very Truth seems to lie hid in the profoundest darkness; yet the love and desire of searching out the Truth exactly, gives me freedom to declare my Opinion, yet still giving place to a better.

Sanguification I conceive to be performed after this manner; The harder Meat received in by the Mouth, chawed by the Teeth, and by the *Spittle* moistened, is in some manner prepared to be made Chyle.

This *Spittle*, from whence it hath its beginning, no man as I know of, hath rightly demonstrated: Those that derived it from the Veins and Arteries, it is upon this reason, because they communicate several Branches to the Maxillary Glandules, through which the late invented *Ductus Salivales* pass; and moreover, a Salivation raised by Art, seems to confirm this Opinion.

But how the Arteries and Nerves can separate so

so great a quantity of *Spittle*, as we have often known to have been thrown forth in so short a time, seems not possible to me, I do rather derive it from the *Stomach* and *Limphaducts*, which I suppose to adhere to the Salivals, upon the following Reasons.

1. As often as voluntary swallowing is designed, we observe the Spittle to ascend as it were from the Stomach into the Mouth it self, especially if the Meat be moistened by Drink.

2. The Tongue, Mouth and the whole Stomach have inwardly a common Tunicle.

3. The Meat in the Mouth, as in like manner in the Ventricle, ought to be mixt with Spittle.

4. It would be very troublesome continually to drink in eating; for it is very easie for some time to keep the devoured Liquor in the Stomach, and then sensibly to communicate some part of it to the Mouth.

5. The Limphaducts are dispersed through the whole Body, and they go both unto the Stomach and Tongue.

6. I judge no Humor to be thrown out of our Body, except by peculiar passages; and so for several reasons, I think the Tears also to be shed through particular Channels, which a more accurate hand (whether mine or others) may sometimes find out: Yea, the most Noble *Lewis Bils*, the great Anatomist, attests to have already discovered them, and promiseth to demonstrate them in the Body, and in in Figures to the Favourers of Truth.

If you enquire of me of what nature *Spittle* is, I answer, that it is *Salt*; yet 'tis not alwayes necessary that this saltness be perceived by the Tongue, which those that understand the nature of

of Artificial Salts, sufficiently know: It is certain that there is some natural Salt in all Meats and Drinks; 'tis also certain, that Salt not only helps the commixing and concoction of the Meat, but also contributes much to the fermentation of the Humors.

The *Ductus Salivales*, which we have now made mention of, have but one strong *Tunicle*, not unlike the Ureters, but that they are lesser.

Of each side *one*.

They *take their Original*, endued with many Roots, from a certain great Glandule, lying under the Tendon of the *Musculus Digastricus*, not far from the upper part of the Jaw, then they run under the Tongue, above the great Nerve of our eighth pare, to the more inward parts of the mouth, where, in the two ranine Glandules near the bridle of the Tongue, they terminate; from whom being variously perforated, issues out the Spittle into the Mouth; of which, the enquiring Reader may more largely satisfie his curiosity out of the writings of *Glisson* and *Van-Horn*.

The Meat thus chawed by the Teeth, and prepared by the Mouth, through the *Gullet*, by the assistance of proper Muscles, is carried into the *Stomach*, which that it may the better keep it, it presently purseth it self together, so that the *upper Orifice* is close shut, but the *lower* not so straight, that though very lightly pressed, may there find passage.

The Meat received by the Stomach, and moistened by Spittle, Drink, and its own humidity, forthwith by the heat of the Stomach, begins to be concocted; the *Order* is not observed here, which was in the eating of the Meat; yet in the begin-

ning

ning I have obſerved the Meat to be diſpoſed in the ſame order, as it was devoured by the Animal that was diſſected; but afterwards the Stomach continually digeſting, firſt ſends away that Meat which is of eaſieſt Digeſtion, to the Guts, and it doth not detain it, whilſt the other is alſo concocted, which Looſneſſes and Vomiting evidently enough declare, if you look into the Excrements.

The Meat being concocted, aſſomes a whiteneſs like to Cream, and this is called *Chile.*

The Chile out of the *ſtomach through the Pylorus* enters the *Inteſtines*, in which paſſage there is a notable Periſtaltick motion: Out of this the *Vena Lactea* ſuck what is uſeful to nouriſh the parts, and the unuſeful is caſt out through the Belly: The *Vena Lactea* conſiſt of one very thin Tunicle, but are endowed with ſeveral Valves, extended from the Liver towards the Glandules, they are diſtributed through all the Meſentery, and ſo are carried for the moſt part to the ſmall Guts, eſpecially the *Jejunum*; but yet the great Guts are not altogether deſtitute of them, that none of the Nutriment may be loſt.

From the Inteſtine, both theſe Veſſels and the Chile contained in them, go to the three *Glandules of the Chile*, the greateſt of which is in the middle of the Meſentery, called by *Aſellius*, *Pancreas*, the two leſſer are call'd the *Lumbar Glandules*, ſituate near the left Kidney.

Each of theſe Glandules ſend forth a branch, which joyning above the left Kidney, conſtitutes a Veſſel call'd *Vena Lactea*, about the bigneſs of a great quill.

This *great Lactean Vein* lying between the *Arte-*

ria aorta, and the *Vertebra's* of the Loins, cover'd with Fat, runs upwards, and above the Heart, ascends by the Gullet, and so hastens to the *left Subclavial Vein*, where it ends in one, two or three branches; here a most thin valve occurs at the very end of the Vein looking inwardly, that the Chyle might not return back again, or run further into the Arm; out of this Subclavial they descend by the *ascending Trunk of Vena Cava* into the *right Ventricle of the Heart*, that there by the help of the heat, and natural quality, it may be changed into Blood.

Being converted into Blood, it passeth by the *Pulmoniack Artery* to the Lungs, which are by part of it nourished, and the rest of it goes through the *Pulmoniack Vein* to the left Ventricle of the Heart, that it may be more perfectly elaborated; thence by the great Artery is carried to all the parts of the Body, communicating to them nourishment for the preservation of Life.

These wayes of Conveyance is displeasing to some, who would rather retain that by the Meseraick veins known, and so greatly cried up by the Ancients, than admit of a new Truth, therefore they say that the Chyle, together with the Blood, may by this way be most conveniently carryed to the Liver, seeing that the Venal Blood is carried not from the Liver to the Guts (which was the false Opinion of the Ancients) but from the *Guts* to the *Liver*, and so not here to be allowed a contrary motion of each Liquor, already sufficiently known.

But in truth these Opinions they defend, rather by a probable ratiocination, out of their old affection to the Liver, than that they can make it out by natural or demonstrative Arguments, or answer these Queries following. 1. What

1. What is the use of the Lacteal Veins?
2. Why is their rise in the Guts?
3. Why the *Valves* are so placed, that they may hinder the regress of the Chile into the Guts.
4. Why do they all go together with the Chile to the *Glandule* of the Chile, and none of them to the Liver?
5. Why are the great Lacteal Veins joyned together?
6. For what end doth the Chile pass into the Subclavial Veins? All which can be made appear in the Body to the sight.

That part of the Blood which is not altogether useless, yet not fit for Nutrition, passeth out of the *Arteries*, ever joyned together by Inosculations, with the *Veins* into the *Vena Cava* and *Porta*, and so by their means is brought again into the *Liver* and *Heart*, that it may be amended, and again concocted.

I do not only say that the Blood is carried by the *Vena Cava* into the *Heart*, but also by the *Vena Porta* into the *Liver*, which I prove by these Reasons.

1. *The Liver is the biggest of all the Viscera*; not that I would infer its pre-eminence from its greatness (see *Chap.* 2.) but I suppose Nature would never have created so great a Body, but for the performing of some extraordinary operation.

2. *Its greatest Vein, coming out with a large Orifice, forthwith goes to and enters the Heart.* What necessity is there for the *Vena Cava* to be distributed with such numerous Branches through the Liver, and so presently to ascend into the Heart; for indeed it ought to convey back the Blood not

amended. Its Trunk likewiſe, and that of the *Arteria Aorta* might aſcend directly up the Body to the Heart without concerning it ſelf with the Liver, eſpecially when the *Vena Porta*, near the Liver, may alſo yield ſufficient wayes for freeing all the Blood from Choler: It ought to receive the Blood concocted in the Liver, and convey the ſame to the Heart.

3. *Its colour is red.* I well know that it is ſometimes obſerved to be white, pallid, yellow, green; but this colour is to be aſcribed to the Diſeaſe, not to its natural Conſtitution; for in all Bodies perfectly ſound, it is found red.

What wonder is it, that the Liver being red, in weakneſs ſhould contract a whiteneſs; doth not a red face grow pale, when the Body is affected with ſickneſs? How eaſily likewiſe that the Liver ſeparating the Choler, ſhould be died with a yellow or green colour? 'Tis alſo obſerved in the firſt xx or xxx dayes after conception, it is naturally white, neither becomes red before the maternal Blood (concerning which, ſome of the Moderns have far otherwiſe aſcribed) comes to the nouriſhment of the already formed parts, which is the ſame in all *Spermatick parts*, even in the Heart it ſelf: but will you conclude from hence, that this red colour only happens to the Liver, and is not more proper to it, than it is to the Muſcles, which yet therefore do not make Blood? To this I anſwer, that the affluent Blood is ſo neceſſary here, and ſo appropriated to the Liver, that without it it cannot be called a perfect Liver; but both the colour, ſubſtance and number of Veſſels are ſo difierent in a Muſcle, and in the Liver, that in no wiſe the parts deſerve to be ſaid to be like one another; and what abſur-

abſurdity is it, to ſay that *a Muſcle ſanguifies*, when even the Heart it ſelf by the principal Anatomiſts and Philoſophers, is acknowledged a Muſcle.

4. *The Maternal Blood comes firſt up the Umbilical Vein to the Liver, ere it goes to the Heart of the Infant:* And the Valves and Ligatures evidently demonſtrate, that the Arterial Blood is carried by the Umbilick Arteries from the Child to the Womb, but the Venal by the Umbilick Vein from the Womb to the Child; but whether the Infant is nouriſhed by the Maternal Blood, or by an External Humor, like as a Chicken in the Egg, is to me all one; when 'tis evident, the Blood, which either coming from the Mother or Infant, paſſeth firſt to the Liver, before it enters the Heart.

5. *The Choler is ſeparated from the Blood in the Liver*; for every one knows that there can no ſeparation be made without there be firſt a Concoction.

From all theſe Arguments I cannot gather any thing, but that the returning Blood is carried by the *Vena Porta* to the Liver, that it may there be purified, and in ſome manner concocted, in which its operation, that the Blood may be rendred more perfect, 'tis carried to the Heart, eſpecially when by reaſon of its continual and neceſſary pulſation, the Blood cannot remain long in the Heart: and for this reaſon I judge the whole Blood muſt needs be moved about with a circular motion.

The Blood made in the Liver, as is declared but now in the eighth Chapter, enters the *Vena Cava*, and from thence into the Heart,

And thus the Royal Liver, at the ſame time, when Kings are taken away, may yet uſe a limited power, and may remain with honour in its own Kingdom.

But what ſhall we do with the Melancholick Spleen, which makes many laugh? It hath many accuſers, and not fewer excuſers.

1. It was never accounted by *Hippocrates* the Learned *Greek*, a receptacle of the Excrements; or is it any where to be found in him, that he call'd the Spleen another Liver.

2. The great number of Veins and Arteries, and ſo by conſequence the abundance of Vital Spirits, do not permit the Excrements to be collected here.

3. It hath not any convenient Cavity, wherein the Melancholy, Fæculent Juice can be received.

4. And if you imagine that there is no neceſſity here of a Cavity, its Parenchima is too thick, and not porous enough, therefore unfit for the reception of ſo thick a Humor; which alſo is never naturally found in it.

5. It is too great a Bowel to perform ſo vile an Office.

6. In dead men, where Melancholineſs hath been the cauſe of their death, upon the examination of the Internal parts, there none of them leſs recede from its natural ſtate than the Spleen, the Heart only excepted, whom the Vital Spirits do ſo greatly defend, that it is leſs affected than other parts, which ſeldom happen to the Inteſtines, Kidneys, Gall and Bladder.

What is therefore its *Uſe*? It elaborates the Acid Humor, which is very neceſſary, but not Excre-

Excrementitious, and mingles it as a Ferment with the Blood, by which it becomes more perfect, and fitter for Circulation.

In my judgment the Salt of the Blood affords matter to this Humor, which it greatly requires that it may not be corrupted; but this Salt which proceeds from the Meat and drink, is never so pure, but that it hath need to be brought to a more perfect state in our Body. But this is my Opinion.

The Supremest of the Kings is the Heart; to this are two others subject, the Liver and Spleen (I beseech you give me leave to make use of this Similitude in favour of the Ancients) the Heart makes the Blood, the *Liver* repeats the Concoction, and separates the Choler; the *Spleen* from its own Salt, by an innate vigor produceth an Acid Humor, which as a Ferment by the Venal Splenick Branch, it mixeth with the Blood, to render it the perfecter, and the more fit for Circulation; if any Excrementitious part should be there separated, it is all by the Cæliack Artery, and the Hæmorrhodal Vessels sent to the Guts.

If it appears to any one to be a contradictory, that by Salt a Humor should be made Acid, we advise that person to taste some Spirit of Salt.

About sixteen years since, the great Anatomist *Franciscus Sylvius* put forth some particular things concerning the use of the *Spleen*; he was of opinion, that the Blood was not made in the *Ventricles* of the Heart, neither that it was carried from the Heart by the Arteries to all the parts of the Body, for nourishment-sake alone, but that it likewise underwent some other Mutation in the rest of the *Viscera's*, particularly *that the*

Spleen further concocts the Arterial Blood, and brings it to a higher degree, yea that it more then perfects it, so that the Blood in a manner in this place assumes the nature of Ferment, by whose meanes in a short time, a great quantity of Mass may become acid, in the same manner he affirms that the Blood more and more concocted in the Spleen there receives strength, by which it restores the returned and weakened Blood, and preparing together with it the Chile, that it may the sooner be turned into Blood: The Reasons which he produceth for it, are these:

1. The Spleen receives a much greater quantity of Blood from the Heart, than is necessary for its nourishment.

2. That it can be returned back again to the Heart by no other way than by the Branches of the *Vena Cava* and *Porta*; for what hath hitherto been delivered of the short Vessel, are to be accounted but ridiculous Fictions, as may most evidently be made appear in dissected Bodies.

3. Seeing this Blood is continually mixed with the returned Blood and Chile in its passage to the Heart, it ought not to be an Excrement; for so the Noble Parts, and the whole Body would not be purged, but the more injured.

4. Chymistry hath long since taught us, that such mutations happen daily in Nature.

The Remaining part of the Blood unuseful to the Body, therefore Excrementions, is thrown out through the *Guts, Ureters, and Parts of the Skin, &c.* concerning which it is not necessary to add more here; but nowwe are forced to describe those new watry passages, which the studi-

ous

ous in Anatomy have long and diligently inquired into. The *watery paſſages*, the *Limphatick Veſels* have their riſe both from the *Liver*, and from the *Joints*, and receive the liquid Juice from the Arteries with which they correſpond.

Thoſe which come from the *Liver*, embrace the *Vena Porta*, and ſo paſs to the Miſaraick Glandules of the Chile, as doth thoſe alſo that aſcend from the Feet, thence they diſcharge their Water into the great Lacteal Vein, which as we have already declared, carries the Chile to the Heart.

Thoſe which proceed from the Arm, both lie above and under the Veins, until they come to the Subclavial Vein, which they enter about the ſame Place, where the great Lacteal Vein doth, being furniſhed with a particular valve juſt at their enterance, and ſo altogether they carry the Water to the Heart.

This Water is Sweet, not being as Urine is, Salt.

Theſe Veſſels conſiſt of a very thin Tunicle, whence they are ſoon broke.

Uſe of them in my opinion, is to take the ſuperfluous Water from the Arteries, and carry it to the Glandules of the Chile, and Lacteal Vein, by which the Chile being made more Liquid, may the more conveniently be conveyed through the narrower paſſages, thence to return the ſame to the Arterial Blood, making it fitting to ſerve to the nutrition of the moiſt parts, and to the cooling and moſtening of the hot.

But that it may the more clearly appear, in what manner I conceive, how what hath already been ſaid, is performed in our Body; obſerve that the Meat is converted in the Stomach into Chile,

to

to which part of the Drink is mingled, this mixture is carried through the Glandules of the Chilo and the great Lacteal Vein into the Heart, where it is changed into Blood, which is by means of the Arteries to be conveyed through the whole Body; every part of this Blood nourisheth those parts which are of the like temperament with it self; the Hot part of it nourisheth the Hot; the Dry, the Dry; the Moist, the Moist, &c. that which is here not well concocted, must be brought back again to be perfected. Why we say that the Veins are not sufficient, and the passages not commodious enough to perform the same, whose Office we know is to bring back to the Heart the Blood not sufficiently concocted; the Reason is, that the Water alwayes remaining in the Vessels, rendered the Blood too thin, so deprived it of its natural consistance and strenth.

From all those so clearly and distinctly laid down, it sufficiently appears what the CIRCULATION OF THE BLOOD is, to wit, *a continual motion of the Blood out of the Arteries into the* Vena Cava *and* Porta *to the Liver and Heart, that in them it may be fitted for the Nutrition and the life of the whole Body.*

Out of the subtilest part of the Blood are the SPIRITS produced, which are two-fold:

1. *Vital*, which begotten in the Heart, carry life to the parts of the Body.

2. *Animal*, who out of the Vitals Elaborated in the Brain, impart Sense and Motion to the Body.

The Natural at the same time that the Circulation of the Blood was found out, vanished.

Chirurgi-

Chirurgical Conſiderations.

1. The *Ductus Salivales*, when the ſtring of the Tongue is to be cut, or the Ranine Vein to be opened, or any other Diſeaſe of the Tongue that is to be cured by Manual Operation, warn you to have great care of thoſe little Glandules in which they end, that they might not be hurt with the Launcet, leſt there follow a continual ſpitting.

The *great Glandule* alſo of the *Neck*, from whence theſe Ductus's take there riſe, when it is inflamed, admits not of the uſe of Mercury; for from hence a dangerous Salivation may very eaſily be raiſed.

2. The *Lacteal Veins*, either the *greater* or the *leſſer*, are oftentimes from a Contuſion or Wound ſo grevioufly hurt, that they cannot carry the Chile to the Heart; and though the wound be cured with great diligence, care, and ſpeed, yet the Patient will fall into a Conſumption, whence follows Death inevitably: This Truth will defend Chirurgons from many Calumnies.

In Children, and older People, is often perceived an induration and inflamation of the Abdomen; the cauſe of which is the hardneſs of the Meſeraick Glandules, which allow not paſſage for the Chile to the great Lacteal Vein, except the very thinneſt of it, whence the fleſh of the Muſcles waſts, the Body becomes heavy, and weary, and at length a Feaver, and a waſting of the whole Body. This evil I uſe to remedy without any great trouble, with this External Liniment

Take compound Oyntment of Marſhmallows,

Oynt-

Ointment of Sow-bread, of Martiaton, of each two drams; Oyl of white Lillies, of Camomile, of each three drams: Mix it into an Ointment.

Inwardly the following Troches are excellent, being continually used the whole time of the Cure.

Take prepared Steel, prepared Crabs-Eyes, of each a scruple; Vitriolated Tartar, half a dram; *Sal Prunella*, xvj grains; *Species Aromatici Rosati*, a scruple; whitr Sugar, two ounces: Make them into Troches according to Art.

In this case *Purging* is not to be used, but with *Cassia*, Cream of Tartar, and Laxative Syrups; for the *Glandules* will not bear strong Purges.

3. The Blood taken out upon the opening a Vein, oftentimes after some few hours space, appears very dry, and destitute of all *Serum*, which for the most part is ascribed to its too great Heat and Adustion: but this Argument is very invalid; for if the same day, the same, or another Vein be again opened, there will be found a great quantity of *Serum* in the Blood; therefore the true cause is to be deduced from the Circulation of the Blood, but especially in the *Lymphatick Vessels*, which at that time draws the *Serum* and *Humidity*, and so leaves the Blood dry.

It very often also happens that the Body becomes *Tumid*, *Turgid* and *Languid*, upon which the fearful Physitian forthwith pronounces nought but danger.

When with the use of Internal and External *Sudorifricks*, the Patient in a short time may be cured: The Cause of this Disease is not from the intemperature and debility of those parts the Ancients call'd Noble; for it may easily be distinguished from the *Dropsie*, which these parts occasion; for

for although the ſick perſons are very dull and weary, yet are they not anxious, but breath free, and the Belly ſwells not much. In the Face, and Joynts eſpecially, is a watry matter collected; but if the ſwell'd parts are compreſſed by the Finger, we perceive much leſs *Serum* to be contained in the parts, than in a true *Dropſie*; from whence thoſe that underſtand not the true Cauſe, are wont to aſcribe this inflammation to wind; But the *Lymphatick Veſſels* when compreſt, broke, or by any other way obſtructed, ſo that the natural motion of the *Lympha* is hindred, occaſions this evil.

4. *The Circulation of the Blood* requires all *venomous* and *depraved* Humors, which are thrown out either by Nature it ſelf, or that outwardly happen to the Body, at the very firſt inſtant, forthwith to be expelled out of the Glandules and the Skin, by the means of attractive Medicines, leſt that the whole Blood in a very ſhort time be infected, and the Heart it ſelf oppreſt, and ſuffer under it: The which doth ſufficiently declare how dangerous it is to open a Vein, and to purge in a Venereal and Peſtilential *Bubo*, nay, in all venomous Wounds; as on the contrary, how neceſſary it is to caſt forth the offending matter, by the uſe of Sudorifick and Attracting Medicines: As moreover how that the invention of the Circulation of the Blood is of very great uſe in the Art of Phyſick.

CHAP.

CHAP. XV.

The Division of the Body.

MAns Body is most conveniently divided into the *Venters* or *Regions*, and *Joynts*.

There are three *Venters*.

1. The *Head*, or the supream Region or Cavity, to it is joyned the *Neck*, which is its prop.
2. The *Thorax*, *Breast*, or middle Region.
3. The *Abdomen*, *lower Belly*, or lower Region.

The *Joynts* are the two *Arms*, and the two *Legs*.

Chirurgical Considerations.

We divide the Body after this manner, that it may be known what place each part of the Body ought to keep; to those that read the following, every thing will become more manifest.

But there is so great *consent* of all the parts, so great concord, that no part may be by it self considered, without a consideration of the whole; therefore I think it necessary, that in a few words the foundation of this mutual consent be here declared.

1. In every part is required *a natural temper*; for the Liver being too hot, the Stomach too cold, the Brain too dry, *&c.* the whole Body must be out of order.

2. *A sufficient number*; for in the Hand, if the least Bone, Tendon or Artery, *&c.* be wanting, forthwith its operation is injured.

3. *A just magnitude*; one Foot greater than the other, causeth a troublesome walking.

4. *A*

4. *A natural Figure, Softneſs, Thickneſs*; yea, colour it ſelf.

5. *A convenient connection* and ſight.

6. The *preſence* of the *Vital Spirits*, which are brought to the Part by the Arteries.

7. The *preſence* of the *Animal Spirits*, which are carried by the Nerves.

8. Outwardly the *Skin*, that covers the whole Body; Inwardly, the *Dura Mater*, the covering of the Brain, Palate, Tongue, Jaws, Breaſt and lower Belly, requires alſo a particular conſideration.

9. It is likewiſe neceſſary that the Nutriment be well concocted, naturally carried and received, that there may no defect be obſerved in the Parts.

The End of the firſt Book of the third Part.

The

The *SECOND BOOK.*

Of the HEAD.

CHAP. I.

Of the Outward Parts of the Head.

THe Head, as Supream Lord, both of its own, and of a thousand other Bodies, not only governs it self, but others well, when formed with a healthy Constitution, and instructed with the knowledge of its own Office; but they live a miserable life, whose Head is not justly and with Art composed, and who neither enquire into, or know its Substance or Figure.

Its *Figure* is Oval, the upper part is call'd *Vertex*, the Fore-part *Frons*, the hinder part *Occiput*, the sides *Temples*, the rest is call'd the *Face*, and consists of the following parts.

First appears the *Skin*, in several places endowed with Hair, but in all with a Scarf-skin.

Under this lies the *Membrana Carnosa* and *Pericranium*, which takes its rise from the *Dura Mater*;

Mater; and passing through the Sutures of the Skull, first invests the Skull, then all the other Bones.

Anatomists that are very curious, make the *Pericranium* to be double; the outward retains the old name of *Pericranium*, the inward is called *Periostium*.

The Bones which lie under these *Membranes*, first we divide into the Skull and Jaws, then into many other Bones.

The Skull is composed of eight Bones, joyned together by proper and common *Sutures*.

The proper Sutures are true or spurious.

The true are three.

1. The *Coronal*. 2. The *Sagittal*. 3. The *Lambdoidal*.

The spurious are the two *squamous Sutures* of the temporal Bones.

The common are three likewise.

1. The *Frontal*. 2. The *Sphœnoidal*. 3. The *Ethmoideal*.

The *Bones* themselves which have many perforations and cavities for the passage of the Air, of the Veins, Arteries and Nerves, are *eight*.

1. The *Bone* of the *Forehead*, alwayes in Children, sometimes in old people, is divided just to the root of the Nose by the sagittal Suture.

2, 3. The *Bones* of the *fore-part of the Head*, or *Bregma*.

4, 5. Temporal Bones, or *Petrosa*.

6. The *Lambdoidal*, or *Bone* of the *hinder-part of the Head*.

7. The *Sphœnoidal*, or Wedge-like Bone.

8. The *Ethmoideal* Bone, or *Cribrosum*.

The *Muscles* of the Forehead are the two *Attolentes*;

lentes; Muſcles of the *hinder part* of the *Head*, as the two *Deprimentes*.

The *Jaws* conſiſt of ſeveral Bones conjoyned ſo by harmony, that in old people they appear but as one; the one is called the upper, the other the lower Jaw.

The upper Jaw is compoſed of eleven Bones, of each ſide five, the odd eleventh is placed in the middle.

1, 2. *Os Zygomaticum*, or yoke-bone makes the lower part of the Orbite of the Eye, conſtituting with its *Apophiſis* the *Os Jugale*, or *Zygoma*.

3, 4. *Os Lachrymale* makes the internal corner of the Eye, having a large Orifice deſcending to the Noſe.

5, 6. *Os Maxillare*, or Jaw-bone, particularly ſo called, which is the greateſt of all the Bones, which conſtitutes the Jaws.

7, 8. *Os Naſi*, or Bone of the Noſe, which in its end hath five united Cartilages.

9, 10. *Os Palati*, or Bone of the Palat.

11. *Vomer*, A peculiar Bone above the Palate, which ſupporting the interſtice of the Noſe, and joyned to it by Harmony.

The upper Jaw moves not but when the whole Head moves, therefore needs not proper Muſcles.

The lower Jaw (which generally remains divided in the fore-part till the eighth year, and afterwards is ſo cloſely joyned together, as it appears to be but one Bone) hath two Proceſſes, and in them a Cavity, big enough to allow a convenient ſituation to the Veins, Arteries, and Nerves, from whence the Teeth receive their Nutriment and Senſe: The Branches of the Nerves about the Chin, paſs out again through a little Orifice, are diſtri-

diſtributed into the Muſcles of the Lips.

It is moved by ſix pair of *Muſcles*, which are,

1. *Pterygoideus Internus.* } *Attollentes.*
2. *Digaſtricus.* }
3. *Latus*, *Deprimens.*
4. *Pterygoideus Externus*, bringing them forward.
5. *Maſſeter.*
6. *Muſculus Temporalis.*

This Muſcle hath this peculiar to it ſelf, that it is covered by the *Pericranium*, by which the ſubjacent temporal Bones are altogether deſtitute of it, which is not obſerv'd in any other part of the Body. But no Man hitherto as I know of hath yet given the Reaſon of it; for whatſoever hath been delivered by others concerning this, hath been ſo ſlight, that they give little ſatisfaction to the lovers of Truth. But of late, *Job Mekeren* an Experienced Chirurgeon of this City, hath in an Epiſtle communicated ſomething particular relating to this matter, the ſubſtance whereof I here give you, until he put forth his Obſervations (ſome of which I have ſeen.)

TO
Dr. PAUL BARBETTE
Phyſitian at *Amſterdam.*

SIR,

I *Will truly declare to you my Opinion concerning the Queſtion I informed you I had moved in the company of ſome Phyſitians, which was, Why the Bones*

which lie under the temporal Muscles, are not covered and invested by the Pericranium, *as are the other Bones.*

On the 6th *of* January 1654, *being commanded by the Honourable Senate of this City, to open the Head of* PETER JACOBS, *Bricklayer, then was my Opinion, which I had been hitherto big withal, sufficiently confirmed; for as soon as I had observed a great depression in the upper part of the Skull, I also found a great quantity of coagulated Blood, which had part of it past through the Ears, and part of it remained yet in the Cavity of the Ear; then being very desirous to know the way by which this Blood had descended into the Cavity of the Ear, which, when I had diligently enquired into, I also discovered the reason and cause wherefore the* Pericranium *covers in this place the temporal Muscles, and not the Bone under them.*

First, The Opinion and the Answer (which the Honourable and Experienced Dr. TULPH *Burgomaster of* Amsterdam, *had given to the propounded Question, to wit, from whence this Blood should come, which very often in Wounds of the Head flows out of the Ears?) I found to be true and reasonable; for I perceived, as the Noble Consul had affirmed to me, that the Blood from the upper part of the Head, did descend between the Skull and* Pericranium, *and so did enter the space that is between the* Os Parietale *and* Petrosum, *and from thence to be as it was strained through a Sieve into the Cavity of the Ear, afterwards in searching further, I found the* Os Petrosum *to be removed a great distance from the* Os Parietale, *so that in the place where the Bones did recede from each other, was a motion observed, beginning at the* Os Petrosum, *and ending in the* Os Parietal,

rietale, *there where the Toothy unition in the* Os Jugale *in the inward part, which is covered with a Callus (as it ought to be in every Articulation) to hinder bruising, is observed.*

And this being so, it may be concluded, that the Petricranium, *if it had invested the Bone under the temporal Muscles, without all doubt it would have passed it self between the* Os Petrosum, *whence from its moving and rubbing in eating, speaking, or any other motion, would have always felt intolerable pain. Thus have you, Sir, what I thought (hoping to proceed further) the reason to the Question propounded,* &c.

Farewel.

This Opinion is indeed judicious, and very probable; for in dead mens Skuls, the upper Bone of the Temple is movable as is the lower; and in the Suture of the *Zygomatick* Bone, is a Cartilage found, which is necessary in every Joynt. For I confess the motion is little, but greater would not be required than what sufficeth to afford passage to the thick Humors, either from External or from Internal Causes, collected sometimes in the Cavity of the Ear, by the which the Brain and Ears may be freed from many and various inconveniences: I hope time and diligence will give us greater light in this thing.

Each Jaw is armed with necessary weapons, which are called *Teeth*.

In men, for the most part thirty two, in Women, twenty eight.

Four are called *Fore-teeth*, or *Cutters*.

Two, *Dog*, or *Eye-Teeth*.

All the rest are called *Jaw-Teeth*, or *Grinders*.

After the 30th, 40th, 80th year, oftentimes comes forth with pain, two Teeth in the very furthest part of the Jaw, which some call the *Teeth of Manners* or *Wisdom*, others the late Teeth.

Before we come to the other Muscles of the Head, we deem it necessary to describe some parts which are not as yet mentioned, that is, the Eye, Ear, Nose, Mouth.

The *Eye* with the Lids, to wit, the Membranous coverings before Cartilaginous and Hairy, defend from External Injuries; hath two Corners or Angles.

In each Corner is a Glandule; that which is in the lesser External Corner, is great, white, hard; that in the greater External Corner, is lesser, soft, red, and covers the *Punctum Lachrymale*.

Four Tunicles contain the three Humors.

One of them, which comes from the *Pericranium*, is likewise common to the Lids, and is call'd *Conjunctiva* or *Adnata*.

The other three are proper, and are thus reckoned.

1. *Cornea*, coming from the *Dura Meninx*.

2. *Uvea*, from the *Pia Mater*; this sometimes dilating it self, then again contracting it self, constitutes the *Pupil*, shewing the many-coloured Oval Circle, call'd the *Iris*.

3. *Retina*, from the Brain it self, or rather from the Optick Nerve; which proceeding further, is changed into the *Aranea*.

To these three may be added a fourth, *Vitrea*, which is illy omitted by many.

The Humors of the Eyes are,

1. The *Aqueous*. 2. The *Chrystalline*. 3. The *Vitreous*.

The

The ſecond pair of Nerves, or the *Optick Nerve* brings the Spirits for ſight; the third pair, or the *Moterious*, for Motion.

Branches of the *Internal* and *External Carotide*-Artery bring to it the Nutritious Blood; and the ſuperfluous is returned by the *Internal* and *External Jugular Veins.*

Fat and Muſcles make up the reſt of the Eye.

The *Fat* ſerving to the Calefaction, Humectation and better motion, is here in great quantity, every where diſtributed between the Veſſels and the Muſcles.

The Eye-lid hath four Muſcles.

One *ſtraight* Muſcle, three *orbicular.*

The *Eye* it ſelf hath ſix, of which four are *ſtraight.*

1. *Attollens*, or *proud.*
2. *Deprimens*, or the *humble.*
3. *Adducens*, or the *Drinking* or *Reading Muſcle.*
4. *Abducens*, or *diſdainful Muſcle.*

Two oblique, which are call'd the Lovers Muſcles; of theſe,

1. *Obliquus Externus*, or *Trocleatis*, becauſe it paſſeth through a Pully.
2. *Obliquus Internus.*

The *outward Ear*, or the *Cartilaginous Auricle*, is joyn'd to the Bone of the Temples.

It hath a very ſenſible *Membrane*, and behind it alſo ſome *Glandules*, to which the Head ſends the ſuperfluous humors.

Veſſels, it receives from the External and Internal Jugular and Carotide.

Nerves, from the ſecond pare of the Nerves of the Neck, as alſo from the ſix pare of the Nerves of the Brain.

Here is but little *Fat*; what little there is, is below the Lap; it receives four *Muſcles*, of which the three former are to it common with other parts, the fourth proper to it ſelf.

1. *Antrorſum ducens*, which moveth it forward.
2. *Retrorſum ducens*, which pulleth it backward.
3. *Quadratus*, *deorſum trahens*, pulling it down.
4. *Tripartitus*. lifting it up.

The *inward part of the Ear* hath four Cavities for ſound; and for defence and ſtrength, as many Bones.

The Cavities are,

1. *Meatus Auditorius*, whoſe extremity a little and ſtrong Membrane covers, which is call'd the *Tympanum*, and Membrane of the Drum.
2. *Tympanum*. 3. *Labyrinthus*. 4. *Cochlea*.

The little Bones are of the ſame bigneſs in Children, as in older people; which are,

1. *Malleolus*, or the Hammer.
2. *Incus*, or the Anvil.
3. *Stapes*, or the Stirrop.
6. *Os Orbiculare*, or the Orbicular Bones.

The Noble *Lewis de Bils*, the great Anatomiſt, in a particular Treatiſe, ſhews, that the *Os Petroſum* (which hitherto by reaſon of its great thickneſs and ſolidneſs, was a vaſt hinderance to thoſe that had a deſire to view theſe Bones of the Hearing in their natural ſituation) not to conſiſt of one only Bone, but to be made up of four, joyned together by Harmony, which may very eaſily be ſeparated by Art.

Within are two Muſcles, the one joyned to the *Meatus auditorius*, the other to the *Malleolus*.

The

The *Nose* covered with a Scarf-skin, Skin, Muſcles, and the *Periostium*, hath two Cavities ſeparated by a Cartilaginous *Septum*; each of theſe again is divided into *that* which aſcends to the *Os Ethmoides*; and into *that* which deſcends above the Palat, into the further part of the Mouth.

The ſides of it are called *Pinna*, *Ala*, or wings; the lower fleſhy part is called *Columna*, or the fleſhy Pillar,

In the inſide they are inveſted with a thin *Membrane*, which is very ſenſible, ariſing from the *Dura Mater*, which is as to the Noſe, likewiſe common to the Mouth, Palat, Tongue, Larinx, Gullet, and to the Stomach it ſelf.

The *Bones* of which it is compounded, are many and ſpungy, replete with *Caruncles*, that the Snot might not voluntarily diſtil forth.

Arteries from the Carotide, bring nouriſhment to it; *Veins* from the Jugular, return the Blood that is not perfectly concocted. *Nerves* from the firſt pare, according to our order, ſerve for the ſmelling, as do thoſe from the fifth pare, ſerve to the feeling.

It hath no *Fat*, Its Bones we have already given you; its Muſcles are ſix.

1, 2. *Deprimentes*, depreſſing the Noſe.

3, 4. *Dilatantes*, or dilating the Noſtrils.

5, 6. *Conſtringentes*, or pulling the Noſtrils together.

In great Noſes there are likewiſe two other Muſcles, which we call'd *Aperientes*, which open the Noſtrils.

The *Mouth*, the Gate of Air, Speech and Nouriſhment, hath two *Lips*, the pare of each ſide,

ſide, call'd *Cheeks*, as that below is call'd the *Chin*.

The Lips have two *Muſcles* common to the *Jaw*.

1. *Quadratus*, or drawing backward. In ſome this motion is performed by the *Zygomative*.

2. *Buccinator*.

The *upper Lip* hath two Muſcles *proper* to it ſelf.

1. *Surſum trahens*, or drawing it upwards.

2. *Deorſum Movens*, or moving it downwards.

The *under Lip* hath but one, *Deorſum trahens*, or drawing it downward.

Common to both the Lips, are

1. *Obliquè ſurſum trahens*, or drawing them obliquely upwards.

2. *Obliquè deorſum trahens*, or drawing them obliquely downwards.

3. *Sphincter Oris*, *Conſtrictor*, or *Orbicularis* which purſeth the Mouth together: The inward parts of the *Mouth*, are the *Teeth*, the *Gums*, *Palat*, *Uvula*, *Tongue* and *Os hyoidis*.

Of the *Teeth* we have treated.

The *Gums* offer nothing worthy a particular conſideration.

The *Palat* conſiſts of a ſenſible Membrane common to the Stomach, which hath its riſe from the *Dura Mater*.

The *Uvula* is a long little Body, it hath two Ligaments, and as many Muſcles, but very little.

The *Tongue* (as a Sword cutting out Honour either well or ill, as it is moved by pure or impure Spirits) behind, is faſtned to the Larinx, *Os Hyoidis*, to the Jaws, and to the Tonſils; before, to a certain Membranous and ſtrong Body, whoſe extremity makes the *String* of the *Tongue*.

Of

Of both ſides the String lies a Glandule call'd *Ranina*, from the neighbouring Veſſels.

It hath two *Veins* call'd *Ranina*, from the Jugulars; two *Arteries* from the temporal; two great *Nerves* from the ſeventh pare, as alſo many little ones from the fourth and fifth,

It is deſtitute of *Fat*.

Its Muſcles are,

1. *Genioglossus*, which brings the Tongue forward.

2. *Styloglossus*, which draws it upwards.

3. *Myloglossus*, which draws it obliquely upward.

4. *Basiglossus*, which draws it directly inward.

5. *Ceratoglossus*, pulling it downwards.

Os Hyoides, by the aſſiſtance of Muſcles and Ligaments, is tied to the ſharp proceſs of the temporal Bones, and to the Buckler-like Cartilage of the Larinx; it is compoſed of five united Bones; the middlemoſt of theſe, which is the greateſt, call'd the *Baſis* of the Tongue, hath two Cartilaginous Productions, which often degenerate into Bones.

It hath four Muſcles on each ſide.

1. *Geniohyodes*, raiſing it directly upwards.

2. *Sternohyodes*, moving it directly downwards.

3. *Styloceratohyodes*, obliquely bringing it upwards.

4. *Coracohyodes*, obliquely drawing it downwards.

All theſe are the outward parts of the Head, which is either ſolely moved by its own proper Muſcles, or together with them likewiſe with the Muſcles of the Neck; theſe ſhall be treated of hereafter. The proper Muſcles are,

1. *Flectens*,

1. *Flexiens*, or the nodding Muscle.

2. *Splenius*, or the Muscle that shakes the Head.

3. *Complexus*, the associate of the *Splenius*.

4, 5. *Obliqui*, drawing the Head obliquely backwards.

6, 7. *Recti*, drawing the Head straight backwards.

Chirurgical Considerations.

Very many, as well Internal, as External Diseases, take their rise from the Head, which is not improperly compared to a House-roof that receives the vapours of the whole House; which afterwards being changed into a Catharr distils upon the inferiour parts creating a *Pain*, and *Palsie* in the Joynts; an *inflamation* in the Eyes and Jawes, &c. a shortness of breathing in the Breast, and in the Stomach a *depraved Chylification*; in the Guts a *loosenesse*, &c. some of the External Diseases shall here be considered by us, the Internal belong to the consideration of the Physician.

1. There is often in the Head *Porago*, *Achor*, or *Favus*, which is a crusted Scab, happening as well in old as young people; these Scurffs are oftentimes very thick, sometimes accompanied with moisture, which causeth great itching and a very ill smell.

The *Cause* is salt Phlegm; it is for the most part a stubborn Disease, and very easily returning again.

The *Cure*.] In this case are generaly used, strong Purging, Bleeding, Sweating, Salivation Unctions, pulling out of the Hairs: But without using any

any of these Remedies, I have often cured this Disease, only with this Decoction.

Take Ashes, (which are call'd by the *Dutch Weidasch* in *English*, Pot-ashes,) with White-Wine, make a *Lixivium* of a moderate Acrimony, in a quart of which, boil the Leaves of Marjarom, Southernwood, of each two handfuls; of Maiden-hair, a handful and half; Rose-leaves three pugils: Make a Fomentation.

With this let the head be washed twice, or thrice a week warm then dry it well with hot Linning Clothes, and in a few weeks space, the Patient with thus doing, will be cured: You may likewise sometimes use gentle Purging Medicines.

2. In a *Hydrocephalus*, and great *Cathars*, an Issue with great success may be made in the Nape of the Neck, because the Cavity's of the *Dura Mater* are thereabouts joyned to the Jugular Veins; especially in Children, in whom very often the Sutures do too much gape.

3. *Fat things* hurt the Head, because it is not covered with many Muscles.

4. In the Skull sometimes a tough matter is collected in several places, which if not removed by those Medicines that purge Phlegm, and outward discussives, in process of time acquire a very great hardness, which still increasing, grow into a perfect Horn, not to be cured, but by Chirurgery.

5. Upon the Skull likewise comes other abscesses, which although they may belong to a *Steatoma*, *Atheroma*, or *Meliceridas*, yet in the Head especially they are call'd *Testudo*, *Talpa*, *Natta*. These give little hope of Cure, where the Bone is much corrupted;

rupted; otherwise they may be taken away by a Threed, or what is better, by a Knife, when they reject other Remedies. The manner of taking them away by a Knife, is this; the Skin being divided in form of a Cross, the Bladder is to be taken out, then the *Pericranium* being separated, the *Cranium* is to be scraped with a *Raspatory*, till you come to the sound part, then sprinkle upon it some Astringent powder, and let the skin forthwith be consolidated again; which if it be too loose, a little part of it may be taken away, which is very seldom necessary to be done, when it may be closed enough in the time of the Cure.

6. If the *Sutures* of the Skul are too open, they bring a weakness upon the Brain; if they are too straightly united, they cause the pain of the Head. Experienced Chirurgions affirm, that it is as safe to use the Trapan in the very Sutures themselves, as any other part of the Head.

7. The *Muscles* of the *Head* occasioning nothing differing from other Muscles, except upon a Wound, or Contusion of the temporal Muscle, a Convulsion easily follows; neither ought it to be transversly divided, lest there happen a distortion of the Mouth.

8. The *Teeth*, seeing they neither are furnished with Membranes, nor Nerves, are altogether insensible; but they which attribute the pain to those Membranes which cover the *Alveolus*, it ought to be ascribed to many Nerves that are distributed through them; yet the Causes in this Case are various, and must be well distinguished, to wit, 1. a hot Distemperature, 2. a cold distemperature, 3. a sharp humor, 4. a solution of continuity. In

In a *hot distemper*, Bleeding, and Purging is very necessary; apply Cupping-glasses to the Neck and Shoulders; let the Head be Purged with Errhins: In the beginning, this Water being held in the Mouth, profits much.

Take the Roots of Tormentil, an ounce; Leaves of Vervain, a handful and an half; Flowers of Balaustians, two pugils; Cipress-Nuts, two drams; red Saunders, three drams; Scales of Iron, one dram; Vitriol, two scruples; Rose-Vinegar, two ounces: Let them boil in a sufficient quantity of Red-wine, to a pint and half, keep it for your use.

The Flux being stayed, we discuss the remaining with the following Decoction.

Take the Roots of Bistort, three drams; of Flowerdeluce, two drams; Leaves of Sage, Hyssope, of Each half a handful, Galls, a dram; Frankincense, Sandarach, of Each two drams, Juniper-Berries, an ounce: Boil them in Red Wine.

In a *cold Distemperature*, the Patient must avoid all cold potable Medicaments, yea the very Air it self, those Medicines that purge Phlegm profit, Bleeding hurt. The following Medicine which is of great vertue may be held in the Mouth.

My Spirit for the Tooth-ach.

Take shavings of *Guaiacum*, four ounces; Seeds of Staves-acre, Pomgranate-rinds, Galls, White-Frankincense, of each an ounce; Crude *Opium*, red flowers of Poppy, Camphore, White-Ginger, Cloves, Long-Pepper, of each half an ounce,

Leaves

Leaves of Sage, Arſmart, Tobacco, Horſe-mint, of each one handful; Roots of Henbane, Pellitory of Spain, Mandrake, Hounds-tongue, Nettles the leſs, of each an ounce and half: Let them infuſe fourteen dayes in a ſufficient quantity of Spirit of Wine, then diſtil it in *Balneo Mariæ*.

A *ſharp Humor* falling upon the *Teeth*, is cured almoſt in the ſame manner as a hot diſtemperature; but if thoſe Remedies are not ſufficient, the following Mixture is to be uſed in a Spoon, which is not only of great virtue in this, but in all the other kinds of tooth ach.

Take water of Plantane, an ounce and half; of Roſes, Mint, of each an ounce; Alexipharmick-water, half an ounce; Cinamon-water, two drams; Julep of Roſes, or Syrup of Red Poppies, an ounce; *Laudanum Opiatum*, three grains. Mix them.

In *ſolution* of *continuity*, and *rottenneſs* of the *Teeth*, it is beſt to pull them out.

In the *Breeding* of *Teeth* in Children, the pain may be mitigated with freſh-Butter and Virgins-Honey, or with a Decoction of the Brains of a Hare or Coney in Ale; but in a long pain it is very convenient to cut the Gum, to give paſſage to the Tooth.

9. From the Blood and mixt Humors ariſeth the *Opthalmia*, ſometimes true, ſometimes ſpurious, ſometimes ſeizing on one Tunicle of the Eye, ſometimes on more; that which happens only in the great corner of the Eye, is call'd *Ægylops*; the white of the Eye may be vexed with little Bladders called *Phlyctena*, which being broke, there follows an Ulceration, except flayed, corrupting the whole Eye.

But

But if this Ulcer ſeizeth only the Caruncle, and that the *Punctum Lachrymale* afterwards grows callous, it becomes a *Fiſtula Lachrymalis*. If theſe Diſeaſes yield not to theſe Remedies propoſed in our Chirurgery, others are to be made uſe of: *Phlectena* are ſoon removed by the following Powder.

Take white Sugar-Candy, prepared Tutty, of each half an ounce; red Coral prepared, Camphore, white Vitriol. *Saccharum Saturni*, of each two ſcruples: Mix them, and make them into a Powder.

A beginning Ulcer of the Eye requires firſt mundifying, afterwards conſolidating Medicines.

A Mundifying Medicine.

Take Mirrhe, 15 grains; Aloes, ſix grains; Sugar-Candy, one dram; the yolk of one Egg, Goats-Milk, three ounces: Mix them.

A Conſolidating Medicament.

Take red Coral prepared, burnt Harts-horn, Sarcocol, of each a ſcruple; Dragons-Blood, half a ſcruple; burnt Lead, a ſcruple; Starch, half a dram; *Crocus Metallorum*, half a ſcruple; Gum Tragaganth diſſolved in Roſe-water, a dram; Horſe-tail-water, as much as ſufficeth to make it into a Collyrium.

If the *Punctum Lachrymale*, in the great Glandule of the Eye be callous, and from the continual Flux of Humors, degenerates into a Fiſtula, firſt, the Calloſity is to be removed, before the other accidents will ceaſe, for which the following are uſed by us; the *Phlegm and Spirit of Vitriol, burnt*

Alum, blew Vitriol, Verdigreece, Mercury-water, Aqua Fortis, Unguentum Ægyptiacum, but the beſt of all is *Unguentum Fuſcum* of *Felix Wurtz*, boil'd to the conſiſtence of a Suppoſitory, and put into the Fiſtula.

The Calloſity being taken away, the Ulcer may be cured by the following Medicine.

Take Roots of Flower-de-luce, round Birthwort, Bark of Frankincenſe, of each a dram and half; Mirrhe, Maſtick, Sarcocols, Aloes, *Cadmia Foſſilis*, of each a dram; Honey, as much as is ſufficient to make it into an Ointment.

If the *Os Lachrymale*, or *Zygomaticum* be foul, the Skin being divided, an actual or potential Cautery muſt be applied, that the *Caries* may be removed, otherwiſe it is impoſſible to cure the Fiſtula, that not taken away.

10. The *pain of the Ears* proceeds from a cold or hot diſtemperature, or from a ſolution of continuity, which oftentimes an Ulcer follows; for a *cold diſtemperature*, and what accompanies it, the Wind, beſides the common and particular Medicines, outwardly may be applied this with very good ſucceſs.

Take Oyl of Rue, Henbane, of each half a dram; of diſtilled Marjoram, half a ſcruple; Caſtor, ſix grains; Eaſtern-Saffron, four grains: Mix them.

The Smoke of Tobacco blown through the boll of a Pipe put into the Ear, hath done good to many for the pain of the Ears, and for deafneſs, oftentimes alſo a decoction of Cloves in Red Wine, hath profited, if two or three drops of it be inſtill'd warm into the Ear, and the Ear afterwards be ſtop with one of the boil'd Cloves.

Two

Two drops of the following Spirit, Morning and Evening dropt into the Ear, is excellent.

My Spirit for the Ears.

Take Ants-Eggs, N° 100, Caſtor, Pulp of Coloquintida, Marjoram, Savin, Wormwood, Rue, a handful; Seeds of Cummin, Aniſe, Fennel, Carawayes, of each three drams; Bay-berry-husks pull'd off, Juniper-berries, of each half an ounce; Pomegranate-rinds, ſix drams; Roots of black Hellebore, round Cyprus, Raddiſhes, Sow-bread, of each an ounce; middle-ſiz'd Onions, N° vij. bitter Almonds, two ounces: Infuſe them 14 dayes in a ſufficient quantity of rectified Spirit of Wine, then diſtil them in *Balneo Mariæ*.

In a *hot diſtemperature*, firſt we ought to divert the Flux of humors by Bleeding, Purging, Scarifications, Gliſters, *&c.* then the following Medicines by Cotton inbibed, we may put into the Ear.

Take womans-Milk, two ounces; Whites of Eggs well beaten, half an ounce; Oriental Saffron, half a ſcruple; Gooſe-greaſe diſſolved, two drams; *Crude Opium*, five grains: Mix them.

Or,

Take Oyl of Violets, ſweet Almonds, Roſe-Vinegar, of each an ounce; *Philonium Romanum*, two drams; Eaſtern Saffron, half a ſcruple: boil them, and ſtrain them for your uſe.

Or,

Take Roots of Marſh-mallows, an ounce; leaves of Mallows, of Mandrake, of each one handful;

Heads of Poppy, N° ij. flowers of Dill, Camomile, of each two handfuls; Linſeeds, three drams, boil them in Cows-Milk for a Fomentation.

The Flux and pain being ceaſed, what yet remains, may be diſcuſſed by thoſe Remedies but now ſet down in a pain from a cold diſtemperature.

Where the Inflammation *apoſtumates*, which we underſtand by a Feveriſh Pulſe, and by the continual increaſing, we muſt aſſiſt Nature by ſuppurating Medicines.

Take *Unguentum Baſilicon*, two drams; Oyl of Linſeed, three drams: Mix them.

Or,

Take Gooſe-greaſe, Oyl of ſweet Almonds, of white Lillies, of each two drams: Mix them.

Or,

Take Roots of White Lillies, an ounce and half; a large Onion roaſted in the Embers, and beaten together, add to them the Meal of Marſh-mallows, half an ounce; Linſeed, ſix drams; freſh-Butter, an ounce and half; Oyl of Camomile, and Linſeed, of each half an ounce; Saffron, half a dram; Make it into a Poultice.

The Apoſtume being broke, the Ulcer is firſt to be mundified; for which purpoſe are convenient Honey of Roſes, of Centaury, the juice of Smallage, Fennel, Bete, Onions, Leeks, Decoction of Agarick, Lupins, Urine, Lye, Oxes-gall, *Unguentum Ægyptiacum.*

Then muſt be uſed thoſe Medicines that may dry and conſolidate the Ulcer.

Take Roots of round Birthwort, half a dram; of Flowerdeluce, a ſcruple; waſhed Ceruſe, prepared

pared Tutty, of each a dram; Mirrhe, Sarcocols, Litharge of Gold, of each two scruples; artificial Cinabar, half a dram; Scales of Iron, a scruple; Honey of Roses, as much as is sufficient: Make it into an Ointment.

Where Worms come in an Ulcer from an impure matter, the following are convenient to kill them.

The juice of Wormwood, Centaury, Arsmart, a decoction of Coloquintida, of white Hellebore, Ox-Gall, Oyl of Wormwood, of bitter Almonds, *&c.*

Or,

Take Aloes, Mirrhe, of each two drams; Coloquintida, half a dram; tops of Wormwood, half a handful: Boil them in white Wine for an injection.

11. The *Nose* as well as the *Ear* is subject to inflammation, which presently in the beginning we are forced to remedy by the Medicaments formerly mentioned in an inflammation, lest otherwise its Cartilages should become carious, which may cause a great deformity.

Sometimes a *Tumor* call'd a *Polypus*, seizeth the inward Cavity of it, occasioned from impure and pituitous Blood; which is twofold: for it either resembles a Tent or Pellet, and is call'd by the general name *Sarcoma*, or it spreads it self with many small branches into the inward parts of the Mouth, or into the external parts of the Nose, and is *in specie* call'd a *Polypus*; that which is of a whitish colour, not painful and soft, is easily cured; but that more difficultly, which is very red; never that which is livid, black or stinking; being touched, it turns into a Cancer, and overspreads the whole Face.

The Cure of it is performed by Medicaments by a Thred, or by a Knife; in the beginning these Medicines that are dry and astringent are most convenient.

Take Pomegranate-rinds, flowers of Balaustians, of each a dram; *Cadmia Fossilis*, two drams; Crude Antimony, *Crocus Martis*, of each half a dram; Mastick, Mirrhe, Loadstone, Litharge, of each a dram: Make them into fine Powder.

These effecting nothing, Exedents are to be used.

Take burnt Alom, Bole-Armenick, Balaustians, of each three drams: Make them into a Powder.

Another stronger.

Take Vitriol, half an ounce; Alom, Pomegranate-rinds, Galls, of each two drams; red Mirrhe, burnt Birthwort, of each a dram: Make them into a Powder.

Another yet stronger.

Take Vitriol, four ounces; Alom, Verdigreece, of each half an ounce; Vinegar, six ounces: Calcine them in a luted Vessel.

Another, very effectual.

Take red and yellow Arsnick, Alom, Galls, of each half an ounce: Make them into fine Powder.

I have seen those Tumors totally eradicated by the water wherein Mercury sublimate is boiled.

But they seldom are cured by Medicine; for the most part we use here an Instrument described by *Sennertus* and *Aquapendens*.

It may also be drawn forth with a pair of Forceps

teps; they may also be removed by a thred (if it can be conveniently put about it) what remains may be cured by application of the Medicines but now mentioned.

12. The *Mouth is inflamed* upon many Causes; the chief are, 1. The heat of the Blood. 2. The acrimony and saltness of the Spittle. 3. A Rheum from the Head; generally there follows little Blisters, and an *Ulceration*, which not being carefully looked after, turns to a *Gangrene*, especially in Children after the small Pox and Measles; in this case, besides the common Means, this is excellent.

Take *Felix Wurtz* his brown Ointment, two drams; Honey of Roses, an ounce and half; Spirit of Vitriol, half a scruple: Mix them.

13. Under the Tongue happens a *Ranula* or *Batrachios*, a Tumor which is more frequently produced from Phlegm, than from any other part of the Blood; and it is often cured by this Powder.

Take Pepper, Ginger, of each a dram; *Sal Gemma*, and common Salt, of each two scruples; wild Marjoram, Calamint, Orrise-roots, Hermodactils, of each half a dram; Mastick, a scruple: Make it into a Powder.

Strew it often upon the Tumor, which if it goes not away; open it in one or more places, that the moisture may come forth, and apply Honey of Roses to the Wound; some in this case use an actual Cautery, but I rather approve of a Launcet.

14. For the *Corruption* of the Gums, this Powder is good.

Take Roots of Comfrey, Pomegranate-rinds,

of each a dram; Frankincense, Mirrhe, white Vitriol, of each half a dram, burnt Vitriol, a scruple: Make it into a Powder.

15. *Epulis*, A Tumor of the Gums must be suddenly taken away by a Thred or Knife, lest it should turn into a Cancer.

16. For the taking off an *ulcerated* and *rotten Uvula*, *Bartholine* hath described an excellent Instrument in his *Anatomical Observations*; but it may be conveniently enough cut off with a pair of Scissers, and the Bleeding may be stopt with Cyprus Vitriol, *Unguentum Ægyptiacum*, or the like, is sufficient to perfect a Cure.. *Fabritius Hildanus* judiciously took it away by the help of a Thred, which is to be imitated by them who fear an Incision.

CHAP. II.

Of the Internal Parts of the Head.

NOw we approach *Pallas*'s Tower, which is sometimes empty, and sometimes fill'd with *Folly*; wherein, if *an ill mind*, be, as it were, a familiar Inhabitant, *Virtue* must prudently look to it self; but yet let it continue its Dominion, whilst its Enemy in the mean time lurking in some corner, shall no where be at quiet.

Before we can enter into it, and look into the Brain, there are two Curtains to be drawn open, the *Pia* and *Dura Mater*.

The *Dura Mater* in the outside rougher than in the inside, encompasseth the Brain very loosly, lest

its

its Arbitrary Motion should be hindred, dividing the same by the help of certain foldings, which is call'd *Falx*, into the right and left part, and also separating it from the *Cerebellum*. In this *Falx* are always found four Cavities, sometimes seven; in which many of the branches of the *Carotide-Arteries* are inserted, afterwards joyning with the Jugular Veins.

These Cavities have the use and substance of Veins, so that they may not unproperly be reckoned among the Veins.

The *Pia Mater* is more sensible, and hath more Arteries than the *Dura*, which doth not only invest the whole Brains, but also enters the winding every where; which, for this cause may more easily be separated.

We do divide the Brain into three parts, which are; 1. The *Brain it self*. 2. The *Spinal Marrow*. 3. The *Cerebellum*, or little Brain.

The *Brain* is of an Athy colour, and of a softer *substance* than Marrow (which is both whiter and solider) whence also it was wont to be call'd *Rind*; it receives several Branches from the Carotide-Artery, and is destitute both of Nerves and Sense.

It hath divers *turnings* and *windings*, which fold in deeply, especially those in the fore-part of the Head, where the *great Fissure* divides the Brain outwardly, even to the Marrow.

The *Marrow* is the Mother of all Nerves; within the Skull 'tis call'd the *Marrow* of the *Brain*; but without it is termed the *Spinal Marrow*.

The *Cerebellum*, or little *Brain* is more of an Ash-colour than White, receives *Arteries* from the *Cervicalis* and *Carotide*; yet there are fewer Branches here than in the Brain, as being much less.

It

It hath no windings, but is made up as it were of several thin plates lying one upon another.

These being thus considered, the Anatomist takes off some part of the Brain with a Knife, and forthwith the *Corpus Callosum*, and the *Fornix* joyning to it, come in view.

Under these laterally lie two great *Ventricles* in figure resembling a Horse-hoof, which the *Septum Lucidum* distinguisheth into the *right* and *left*, or into the *first* and *second*.

In them is contained the *Rete Mirabile*, or *Plexus Choroides*, consisting of many little Glandules, composed from the branches of the temporal Artery, twisted together in form of a Net.

In the fore-part these Ventricles are united, and make a third.

In this third Ventricle are two Cavities, the first of them runs to the *Infundibulum*, and to the *Glandula Pituitaria*, the other to the fourth Ventricle contained in the *Cerebellum*; above this Ventricle are observed four round Bodies, which are call'd *Testes* and *Nates*, to which joynes the *Glandula Pinealis*, which is falsly call'd by some the seat of the Soul: Of late the famous *Sylvius* hath demonstrated it not to reside in the Ventricles, but without them; by whom also it is esteemed but a Glandule: and that with more reason, because that both he and I have found in it not seldom two or three Stones, but sometimes four, which we yet keep by us.

The Bodies being removed, eight pair of Nerves appear, which we have already treated of; on the fore-part of whom joyns the *Rete Mirabile* of *Galen*, which is a complication of the Cervical and Carotide-Arteries.

After

After these, the *Cerebellum* comes in view, like a double Globe, in the midst of which is the *Processus vermiformis*, and *Pons Varolii*, under it lies the fourth Ventricle.

Last of all, the *Spinal Marrow* shews it self, divided in its beginning into two parts, not unlike a Writing-Pen, which descending down the Back, imparts its branches over the whole Body.

Chirurgical Consideration.

1. In *Wounds* of the *Dura Mater*, two Symptoms render their Cure very troublesome, to wit, a Flux of Blood and extream pain; if the Skull be not sufficiently open, without any delay the Trepan is to be applied on the Part affected, and forthwith the extravasated and grumous Blood being discharged, let this Ointment be applied.

Take Manna of Frankincense, two drams; Aloes, one dram; Mirrhe, a dram and half; the softest Hares hair, half a scruple; white of an Egg, as much as sufficeth to make it into a Liniment.

The Powder is also very useful that is described in the Chapter of particular Wounds in the second Part of this Chirurgery.

To mitigate the pain, Oyl of Roses, Violets and Myrtles used warm, as also the warm Blood of a Hen or Pigeon, *&c.* is very much commended.

The Flux of Blood and the pain being ceased, the following Medicines are to be used, which are not to be left off, unless the Matter begins to flow too plentifully.

Take Oyl of Turpentine, two ounces; Spirit of Wine, Syrup of Wormwood, of each an ounce: Mix them.

But

But if a Gangrene or putrefaction should happen, the following Liniment is of great use.

Take Sarcocols, Mirrhe, Aloes, of each a dram; Syrup of Wormwood, Honey of Roses, of each two drams; *Ung. Ægyptiacum*, two drams and an half; *Aq. vitæ*, an ounce and half; White Wine, an ounce: Let them boil gently, then strain them.

Neither do I apprehend any danger is to be feared in the taking off part of this Membrane when putrified; so that you can come at it with a pair of Scissers, and that the *Sinus* or *Pia Mater* be not hurt.

2. When the *Pia Mater* is likewise affected, the Chirurgeon must abstain from all Oyls, although they be drying, lest a corruption of the soft Brain be caused: Drying Cephalick Powders are very convenient to be used here. But seeing that these Wounds for the most part are Mortal, I shall say no more of them.

CHAP. III.

Of the Neck.

THe Neck under the Scarf-Skin, Skin, and fleshy Membrane, and the common and proper Membrane of the Muscles, hath of each side four *Muscles.*

Of these, the *Longus* and *Scalenus* bend it.

Transversalis and *Spinatus* draw it back of each side.

It hath five *Veins*, *Cervicalis*, *Musculo Superior* and *Inferior*, *Carotis*, *Interna* and *Externa.*

And

And as many *Arteries*, *Cervicalis*, *Muſcula Superior & Inferior*, *Carotis Interna & Externa*.

It hath Nerves from the *Par Vagum*, and the Spinal Marrow.

In the fore-part of it, are many *Glandules*, which are greater in Women than in Men.

Under theſe the *Larinx*, the Organ of the ſound lies, compoſed of five Cartilages, which are,

1. *Thyroides*, or Buckler-like.
2. *Cryeoides*, or Annular.
3. *Arytenoides*.
4. *Glottis*.
5. *Epiglottis*.

It is moved by ſix pair of Muſcles, which are,

1. *Hyothyroidei*, the pair that lift up the *Larinx*.
2. *Bronchii*, the pair that pull it down.
3. *Cricothyroidei antici*, the pair that dilate.
4. *Cricotheroidei laterales*, purſing it together.
5. *Thyro-arythenoidei*, that open it.
6. *Arythenoidei*, Sphincters that cloſe it.

After theſe, the *Almonds* or *Pariſthmia* (by ſome call'd *Tonſils*) offer themſelves; then the *Pharynx*, to which appertain ſeven Muſcles, by whoſe aſſiſtance the Meat and Drink are ſwallowed.

1, 2, *Sphenopharyngei*, which raiſe up the *Pharinx*.

3, 4. *Cephalopharyngei*, moving it inward.

5, 6. *Stylopharyngei*, dilating it.

7. *Conſtrictor* or *Sphincter*, which cloſeth the Gullet.

The back-part of the Neck hath ſeven *Vertebra's*, the proceſſes of ſome of which are perforated, to give paſſage to the Veſſels that carry the Blood into the Brain.

Chi-

Chirurgical Considerations.

1. We have already sufficiently treated of the Cure of *Scrophula's* or the *Kings Evil*; I will only give you here the Oyl of *Langius*, whose Vertues are very excellent, not only in the *Kings Evil*, but also in malignant and sordid Ulcers, if it be carefully used.

Take Oyl of Philosophers or Brick, half a pound; Frankincense, Mastich, Gum Arabick, Turpentine, of each three drams; pound them together, and distil them in an Alembick, then add to the distillation Salt of Holm-Oak, two drams; and distil it again, and reserve the distillation in a Glass for use.

In the room of the Salt of Holm-Oak, which grows not in *Holland*, *Sal Gemma* may serve instead of it.

2. In a *Hernia gutturis*, or *Bronchocele*, seldom Medicaments effect any thing, when for the most part the Cause of the Disease (to wit, preternatural Phlegm mixt with Wind) is contained in a peculiar Bladder, and the Tumor lies under the Muscles, having its Original not from the Glandules, but from the *Aspera Arteria*, or Wind-pipe; yet in the beginning, the following do good.

Take Roots of *Irees*, Galangal, of each a dram and half; Pennyroyal, Savoury, Rupture-wort, of each a dram; Seeds of Fennel, Anniseed, of each a dram; Parsly-seeds, half a dram; Long-Pepper, Spikenard, Nutmegs, Cinamon, of each two drams; Mirrhe, half a dram; Burnt Alom, half an ounce; White Sugar, three ounces: Make it into a fine Powder.

Let

Let the Patient take of this Powder each Morning a dram and half in White Wine.

Take Gum *Ammoniacum*, *Galbanum*, *Bdellium*, diſſolved in Vinegar, of each an ounce; powder of Orriſe-roots, two drams; Muſtard and Nettle-ſeeds, of each a dram; Pulp of Coloquintida, Eaſtern Saffron, of each a ſcruple; *Sal Gemmæ*, Alom, of each a dram; Naval-Pitch, ſix drams; Roſin of the Pine, an ounce: Make it into a Plaiſter.

Theſe Medicines effecting nothing, after this manner the Tumor may be taken away. Firſt, Take up the Skin, and divide it long-wayes, then it being ſeparate of each ſide to the bottom, from the Tumor. take out the Bladder, whole, if poſſible; for if any part of it be left behind, the little Artery which brings nouriſhment to the Tumor, muſt be divided, leſt it increaſe anew. Then let the Part affected be waſhed with Vinegar, wherein a little Salt and Nitre hath been diſſolved; for the Flux of Blood is not in this caſe at all conſiderable; Laſtly, Bring the Lips of the Wound together with a ſtitching Plaiſter, it being not neceſſary to uſe a Needle here.

Of the *Angina* and *luxation* of the *Vertebra's* of the *Neck*, we have ſpoken of in their places.

The End of the ſecond Book of the third Part.

The

The THIRD BOOK.

Of the *Thorax* or *Breast.*

CHAP. I.

Of the External Parts of the Breast.

THE middle Region of the Body, whose upper part is call'd the *Shoulders*, fore-part the *Breast*, hinder part, the *Back*; under proper and common *Teguments*, hath proper and common Muscles.

The common are those of the *Lower Belly* and *Scapula's*; *those* we have shewn already; *these* are four.

1. *Serratus Anticus minor*, which brings the *Scapula* forward.

2. *Trapezius*, or *Cucullaris*, which moves it upward, and obliquely backward.

3. *Romboides*, which moves it obliquely downwards.

4. *Levator.*

The proper Muscles of the *Thorax* are twelve,

1. *Subclavius* or *Extensor.*

2. *Serratus Anticus major*, or the inferior *raiser* up the Ribs.

3. *Ser-*

3. *Serratus posticus superior*, or the superior riser up of the Ribs.

4. *Serratus posticus inferior*, or the *depressor* of the Ribs.

5. *Sacrolumbus*, which draws the Breast together.

6. *Triangularis*, which likewise draws the Breast together.

Under these Muscles lie the *Breasts*, in both Sexes abounding with quantity of *Fat*, and in the Female with many Glandules.

The *Back* and *Loins* (whose Muscles in this place we are forced to describe) have four pair of Muscles.

1. *Quadratus*, or the flexor of the Vertebra's.

2. *Longissimus*, or first extender of the Vertebra's.

3. *Sacrum*, or the second extender.

4. *Semispinatum*, or the raiser up of the Back.

After the Muscles, follow the Collar-Bones, the Shoulder-blades, the Breast-bone, the Ribs, and the Vertebra's; of the Veins, Arteries and Nerves we have formerly treated.

The *Clavicles*, or *Collar-Bones*, being spungy bones, are joyned to the upper proces of the Shoulder-blade, by strong Ligaments and movable Cartilages.

The *Scapula* or *Shoulder-Blade* is a broad and thin Bone, lying upon the outside of the Ribs, furnished with two Ligaments, three processes, and five appendices.

The *Sternum*, or *Breast Bone* being distinguished in Infants, by seven or eight lines, and by three or four in old people, is very spungy, and hath in

its lower part a Cartilage, call'd *Cartilago ensiformis* or *mucronata*.

The Ribs in each Sex are twelve; the seven *supermost*, which are the true, are joyned with a double Tubercle to the Vertebra's, but with a Cartilage to the *Sternum*, are hard and round, the five *lowermost*, which are the Baſtard-Ribs, are leſſer, ſofter and ſhorter, having Cartilages about the *Sternum*, but not touching it.

Between theſe Ribs on each ſide, are *Muſcles* found, which are call'd *Intercoſtals*, eleven within, and as many without; ſo that in all there are forty four, the Fibres here are placed croſs-wiſe.

In the Cavity of each Rib, formed in the lower part of it, reſides a Vein, Artery and Nerve, which extend themſelves into the middle of the foreſaid Muſcles.

The *Vertebra's* of the *Back* are for the moſt part accounted twelve, and have nothing conſiderable.

Chirurgical Conſiderations.

I omit here divers operations, having already treated largely enough of them before.

What now offers it ſelf, is a *Fiſtula* of the *Breaſt*, of a more difficult cure in that, than in any other part, by reaſon of the continual motion of the Muſcles; therefore 'tis highly neceſſary to diſtinguiſh theſe Fiſtula's, for the oblique do very hardly admit of any Cure: Thoſe that perforate the Breaſt, are not eaſily made whole again; thoſe that have their riſe from between the *Pleura* and the Muſcles, the matter falls down, whence it comes to paſs, that afterwards it is difficultly diſcharged; therefore in this caſe there neceſſarily is a

ſhort

short breathing, and a slower motion of the Breast: The *Callous* is to be removed by the same Remedies we have set down in the Chapter of *Fistula's*, and so sometimes the *Pleura*, and the flesh of the Muscles unite again; but if these effect nothing, let the Chirurgeon put a little crooked *Silver-pipe* into the *Fistula*, so that the end of it may touch the bottom, through which let him pass a Needle fitted with Silk, answering to the crookedness of the Pipe, which being done, let him with the Needle perforate the Skin, then the Needle being drawn through, let both ends of the Thred be tied together, and the Thred every day be annointed with some *Exedent* Medicines, and the Callosity being taken away, let the Ulcer be *skinned*. The Instruments which are used in this case, are described in *Tab.* 38. *Figure* 5, of *Scultetus*, of the old Edition.

The Breasts of Women often in those that give suck, from the great quantity of Milk, wax hard and painful, and by the *Dutch* is called *Drop*; which affect may be cured in one dayes space, with compound Ointment of Marshmallows, the watry matter being suckt out by a Woman or Whelp: but this discharge being neglected or delayed, every day the Breast grows harder and harder, nay, becomes *inflamed*; then *Bleeding*, *Purging*, *Sweating* is requisite: Outwardly this Cataplasm may be applied.

Take meal of Marshmallows, of Fenugreek, of each an ounce; Flowers of Elders, Camomile, of each a handful; red Roses, two pugils; Crums of course Bread, an ounce and half: Boil them in Ale, adding to them of Rose-Vinegar, an ounce. Make a Cataplasm.

The Flux of Humors and Pain being ceased, the remaining may be discussed by the following Cataplasm.

Take Meal of Beans, of Linseed and Fenugreek-seed, of each an ounce, Cummin-seed, three drams, boil them in Wine, adding to it compound Ointment of Marshmallows, Oyl of Camomil, of each half an ounce: Make it into a Cataplasm.

When it begins to apostumate, *Maturatives* are to be used.

Take Leaves of Mallows, Marshmallows, of each a handful, Powder of Linseed, an ounce, of Fenugreek-seed, an ounce and half, Leaven, half an ounce; boil them in Milk, adding to them *Unguentum Basilicon*, an ounce, Saffron, a scruple: Make it into a Cataplasm.

The Tumor being suppurated, must be opened with a Caustick, or, what is better, with a Lancet, and put a Tent into it, dipt in common Balsom of Brimstone until the end of the Cure; laying upon the Breast *Emplastrum Diasulphuris Islandi.*

3. A *Gibbosity* ariseth from the spine of the Back, when the Vertebra's are removed outwardly, or of one side, from their natural place; which is occasioned sometimes by an External Cause, some by an Internal, especially when some pituitous Humor is collected about them; this *Humor* must be taken away by discussive Oyls and Plasters, before what is started out, can by a Steel-compress, fitted to the Body of the Patient, be reduced: This reduction is not so much performed by the Compress, as it is by the Emollient quality of the Iron: For this reason, it is necessary that

that the Patient, though cured, for a year or more after, use another Bandage, that the soft Bones may not again start out.

It is here likewise to be observed, that in the middle of the Back, about the seventh Vertebra, with great success may an Issue be made, to intercept Rheums flowing to the Hip, Kidneys, Feet, *&c.*

CHAP. II.

Of the Internal Parts of the Thorax.

THe *Breast* now comes to be opened, that we may view the Fountain of Life, which the Celestial Truth affirms to consist in the Blood, for what reason is it therefore that the Soveraign Sanguification is not attributed to the Heart, where every where, and by all, it is call'd the Original of Life.

Within, the Breast is invested by the *Pleura*, which is afterward doubled, and at length quadrupled, extending it self from the Vertebra's to the *Sternum*, and then it is called *Mediastinum*, dividing the Lungs and Thorax.

Near to the Throat there adheres to the *Mediastinum*, a Glandulous Body call'd *Thymus*.

The Lungs drawing in the Air, and so cooling the Heart, is furnished to this purpose with a *Trachea, Aspera Arteria*, or Wind-pipe, this lies upon the Gullet, and consists of Cartilaginous Rings, and a double Membrane.

The outermost of these Membranes which is

the thinner, ariseth from the *Pleura*; the innermost, which is the thicker, from the *Dura Mater*.

The annulary Cartilages are joyned together with Ligaments, and make not a perfect Circle, as being destitute of a fourth part that lies upon the Gullet.

The Wind-pipe distributes *Branches* through the whole Lungs, which are strong enough, but not at all Cartilaginous.

The *Lungs* themselves covered with a thin, porous *Tunicle*, consist of a soft, red, spongy *substance*.

In the fore-part they adhere to the *Sternum*; in the back-part to the *Vertebra's*, filling the greatest part of the Breast.

It hath seven lesser *Vessels*, of which we shall speak in their places.

The Heart, the Work-house of the Blood, the Fountain and Origin of Life, as the Sacred Writ it self also witnesseth, is included in a certain Case, call'd by Anatomists, *Pericardium*: It consists of two Membranes, the outermost comes from the *Mediastinum*, the innermost from the Vessels of the Heart, it contains a clear watry Liquor, void of all Acrimony, which we no longer doubt of to be brought from the Ductus's of the Lymphæ.

The *Heart* it self consists of a fleshy, serene and hard substance, which is invested with a proper *Tunicle*, furnished with *Fibres* of all sorts, and like a Muscle is continually moved.

It is placed in the middle of the Breast, but the point of it inclines sometimes to the left side.

In Figure it is like to a *Pine-Apple*, having in its

its upper part two Auricles or little Ears, which always beat before the Heart it self.

In old people, the right Auricle is bigger than the left, which in Infants is the contrary; in the throwing forth of the Blood, the Auricles, as well as the Heart it self, are purst together, and dilated as often as they take in the Blood; and this Constriction and Dilation makes the Pulse.

For the concoction, reception and throwing forth of the Blood, it hath two Cavities, and four Vessels.

The Cavities are distinguished by a fleshy Division, in which I could not yet find any way appointed for the motion of the Blood out of the right Ventricle into the left, although many Anatomists do certainly affirm it.

These Cavities are divided into the right and left; the *right*, which is the greater, receives the *Vena Cava*, and *Arteria pulmonalis*, or *Vena Arteriosa*; the *left*, which is the *least*, receives the *Arteria aorta*, or great Artery, and *Vena pulmonalis*, or *Arteria venosa*.

Of these Vessels, as also of the Nerves, and Chylous passages, or the Thoracick lacteal Veins, we have treated of in the first Book.

Under the Wind-pipe in the Cavity of the Breast, lies the *Oesophagus* or Gullet, resting upon the Vertebra's.

About the fifth Vertebra of the Back, it inclines a little to the right side, that it may give way to the *Arteria aorta*, unto the eleventh Vertebra; thence with a straight *Ductus* it passeth the *Diaphragm* into the lower Belly.

It consists of a double Membrane, the outermost is fleshy, having streight and round Fibres, the in-

nermoſt tranſverſe and oblique: Many add to theſe a third from the *Peritonæum*, and rightly in my opinion.

The *Diaphragm*, in nature of a Fan, ſerving to reſpiration, divides the Thorax from the Abdomen, and adheres to all the Baſtard-Ribs, to the Cartilage of the Breaſt-bone about the Vertebra's, ſending two fleſhy Proceſſes to the lower parts.

Its edges round about are fleſhly, variouſly movable like a Muſcle, but its Center Membranous, and very ſenſible.

It hath three perforations, 1. In the middle of it, through which the *Vena Cava* paſſeth. 2. In the left ſide, through which the Gullet, with the adjacent Nerves. 3. About the Vertebra's, for the paſſage of the *Arteria aorta*, with the *Vena azygos*.

It receives more Nerves than any other part of the Body from the Collar-Bones to the Feet, which ariſe not only out of the Brain, from the *Par vagum*, but alſo from the Spinal Marrow, and from the fifth and ſixth Vertebra of the Neck. Of the other Veſſels we have already treated.

Chirurgical Conſiderations.

The *Pleura* is not only ſubject to Inflammation, upon which follows a Pleuriſie, an Empiema, and Impoſtumation; but alſo a certain pain, which a ſalt Humor produceth: This may be diſtinguiſhed from a Pleuriſie, becauſe here is a dry Cough, yet no Fever, alſo free breathing enough. I have uſed to remove this by Bleeding and Sweating, and if you fear a Pleuriſie, apply outwardly this Plaiſter.

Take Marrow out of an Oxes-bone, Ducks-greaſe, of each three ounces; the Muſſilage of Marſh-

Marshmallows, Linseed, Fenugreek-seed, of each an ounce; Frankincense, Mastick, of each half an ounce; Oyl of *Nucista* expresst, two drams; yellow Wax, as much as sufficeth to make it into a Plaister.

2. *Mediastinum*, hath not so great a Cavity in Man, as in Dogs and other Creatures; yet it happens sometimes that a purulent matter descends between the two Membranes of it, which can by no means be evacuated by the Lungs; therefore we are forced to perforate the *Sternum* with a Trepan, that so through the made Orifice, by the use of Tents, Spunges and other Instruments, the Matter may be discharged.

3. In that kind of *Quinsey*, which we above call *Cynanche*, where the Patient is almost suffocated, we remedy by *Laryngotomia*, or opening the Wind-pipe; the Disease it self is far more dangerous than this Operation; therefore it would be well if it was oftner practised; nevertheless there is required a diligent consideration, that the other Parts, to wit, the *Lungs*, *Pleura*, *Gullet*, &c. be not also enflamed, or already full of matter, which may frustrate your labour, and afford cause of scandal; but every thing being well weighed, the Operation is to be performed in this manner; Let the Head be a little bent backwards, that the Wind-pipe may the more plainly appear, and the annulary Cartilages recede the further the one from the other; then divide the Skin according to the length of the Larinx unto the hollow, and let a stander-by with his Fingers pluck open the Skin of each side, that the Chirurgeon may see the two long Muscles, *Sterno hyoidei*, which he must remove a little asunder

der either with a Knife of Wood or Bone, then the Larinx appearing, he must make his Incision with a Launcet, in the middle between the third and fourth annulary Cartilage, taking great care that he hurt not the Cartilages themselves; upon the Breaths coming forth, take out the Knife, and put a Silver Pipe into the Wound, which must not be so long as to reach the hinder part of the Wind-pipe, lest it cause a continual Cough, the danger of suffocation being over, which for the most part happens to be about the third or fourth day, or at least ought then to be, the Pipe must be taken forth, and the Wound is to be cured in the ordinary manner accordiug to Art, from which it differs not.

4. 'Tis no new thing for *Worms* to generate in the *Pericardium*, which, except kill'd, corrode the very Heart it self. They may be destroyed with a Decoction of *Scordium*, *Wormwood*, *Centaury*, &c. drunk twice or thrice a day.

Concerning the *Wounds* of the *Lungs*, *Heart* and *Diaphragm*, see our Chirurgery. A *Wound* of the *Gullet* is cured after the same manner as that of the *Stomach*.

The End of the third Book of the third Part.

The

The *FOURTH BOOK.*

Of the *Lower Belly.*

CHAP. I.

Of the External Parts of this Belly.

THe lower Cavity, properly call'd the *Belly*, is divided into three parts, of which,

1. Is the *Epigastrium*, each side of which is call'd *Hypochondria*.

2. The *Region* of the *Navel*, whose sides are call'd *Ilium*.

3. *Hypogastrium*, the sides of which are the *Groins*.

The lower hairy part is call'd *Pubes*.

The *Abdomen* under common Teguments, hath ten Muscles, of each side five, very necessary for the exclusion of the grosser Excrements contained in the Guts; they are these.

1. *Obliquely descending*, which in the uper part, the *Navel*; in the lower, in Man, the process of the *Peritonæum*; In Woman, the long Ligaments of the Womb perforates,

2. The *Oblique ascending*.

3. The

3. The *Recti*, or straight.
4. The *Pyramidal*.
5. The *Transverse*.

In the middle of the *Abdomen*, between the two straight Muscles, ariseth the *Linea Alba*, or White-Line, from the meeting of the broad Tendons of the other thin Muscles, which is very sensible.

Of the *Veins*, *Arteries* and *Nerves*, both of the outward and inward parts of the lower Belly, we have already treated of in the first Book; as likewise something of the Bones. But the more curious Examiner meets withal, first, five *Vertebræ* of the *Loins*, which are very full of holes, and greater and thicker than all the rest.

Next to them follows the *Os Sacrum*, which is triangular; in old people being only of one Bone, but in young, consisting of five or [illegible]

To this is joyned the *Os Coccygis*, bent in Women more outward, in Men more inward.

On the sides of the *Os Sacrum* is the *Os Innominatum*, or *Coxæ*, consisting of three Bones joyned together with a Cartilage. Of these,

1. Is the *Os Ilium*, much thicker in Women than in Men.
2. *Os Pubis*, more easily separable in the fore-part in Women than in Men.
3. *Os Ischion*, or *Coxæ*, furnished with a large Cavity, which is call'd *Acetabulum* or *Pixis*, appointed to receive the head of the Thigh-Bone.

Chirurgical Consideration.

The outward Division of the Lower Belly, plainly declares what Internal Parts may be affected: In the right *Hypochondrium*, the Liver is situated,

ſituated, extending it ſelf beyond the Baſtard-Ribs two fingers breadth, to the Sword-like Cartilage of the *Sternum*.

In the *middle* lies the *Stomach*, extending it ſelf to the ſofter parts of this Belly, ſo that it reacheth four fingers breadth beyond the Baſtard-Ribs: Beyond the ſoft places near the Kidneys lies the Spleen.

In the *middle* of the *Umbilical Region*, and about it lies the *Small Gut*, which being wounded, is moſt dangerous.

In the *right ſide*, about the Kidney, the Gut *Colon* takes its riſe, tranſverſly running between the Stomach and Navel to the left Kidney, where winding downwards, and becoming narrower, is the frequent receptacle of Wind, and whence long pain and great tenſion, which is undeſervedly attributed to the Spleen on the other ſide, the Inteſtine reſts upon the Meſentery, as doth the Stomach upon the *Pancreas*.

In the middle of the *Hypogaſtrium*, are the Bladder and Womb placed, and under them the *Inteſtinum rectum*.

On the *Side* lie the *Spermatick Veſſels*, and the *Glandules*, in which both benign and malignant *Buboes* are produced.

But all theſe Parts cannot be wounded, except the *Peritonæum* and *Omentum* be firſt perforated, yet in many men the *Omentum* deſcends not below the Navel; and contrariwiſe in others, it reacheth to the *Os Pubis* it ſelf.

CHAP.

CHAP. II.

Of the Internal Parts of the Abdomen.

THe first of the Internal Parts is the *Peritonæum*, comprehending all the others, before and behind, above and below.

It is a double Membrane; its rise is rather deduced from the membranous quality of the Soul, than from the Meninges of the Brain.

It is joyned to the Diaphragm, and to the first and third Vertebra of the Loins.

It is thicker in Women from the Navel to the Privy Parts, and therefore stronger, terminating about the *Os pubis*.

In Men it is thicker from the Navel to the Diaphragm, and after it hath received the Spermatick Vessels, as in a Sheath, it sends them through the outer Membrane to the Testicles, where it constitutes their first Coat. Between the foldings of this *Peritonæum*, lie *four Umbilical Vessels*.

1. The *Umbilical Vein*.

2, 3. The two *Umbilical Arteries*.

4. *Urachus*, coming from the *Navel*, which is nothing else but an indurated knot of the aforesaid Vessels,

In Infants these Vessels are open, in old people altogether closed, and turned into Ligaments: Yet I could never by any means observe in Abortives of six, seven or eight months, the *Urachus* pervious into the Bladder; for neither Probe nor Wind would pass.

The

The Umbilical Vein goes to the Liver, the *Urachus* to the Bladder, both the Umbilical Arteries to the Iliack Branches of the great Artery.

The *Omentum* or *Caul*, keeping the Stomach and Inteſtines warm, is very fat and double; yet it conſiſts of very thin *Coats*, which are perforated with many little holes.

It takes its riſe from the *Peritonæum*, under which it alſo lies, for the moſt part extending it ſelf as far as the Gut *Colon*. and ſometimes as far as to the *Os Pubis*.

The *Stomach*, the Work-houſe of the Chyle, is compoſed of three *Tunicles*; the outwardmoſt is common from the *Peritonæum*; the innermoſt from the *Dura Meninx*, the middlemoſt is proper to it ſelf; the firſt is the thickeſt, the middlemoſt fleſhy, and the innermoſt wrinkled.

It hath Fibres of all ſorts, inwardly cruſted over with ſpungy fleſh.

It is *ſituated* in the middle of the *Hypogaſtrium*, reſting upon the Vertebra's of the Loins; its left Orifice is called *Os*, or *Stomachus*; its right Orifice *Pylorus*.

The *Guts* are joyned to the Stomach, which convey the Chyle, and expel the Excrements; they are almoſt of the ſame ſubſtance with the Stomach, and are all divided very well into the thick and thin.

The thin Guts are,

1. The *Duodenum*, in which the *Veſica Fellea*, with the *Ductus Coledochus*, and the new *Ductus Pancreaticus* are inſerted.

2. *Jejunum*, in which are more Lacteal Veins than in any of the reſt.

3. *Ileon*, which is the longeſt of all.

The

The thick Guts are,

1. *Cæcum*, with its worm-like appendix.

2. *Colon*, with two outward Ligaments, and one internal *Valve*.

3. *Rectum*, with the two Muscles, *Ani levatores*, and with one Sphincter all these Guts are joyned together by the help of the Mesentery, and also to the Vertebra's of the Loins.

The *Mesentery* consists of a double strong *Membrane*, with many Glandules between each Membrane, which are so very small, that they can scarce be perceived by the Eye; but commonly after a long sickness, three excepted, they shew themselves, and are greater than their natural constitution, long, white and hard.

The greatest of them is seated in the midst of the Mesentery, which being prest, yields Milky juice, sometimes thicker, otherwhile thinner, which is nothing but Chyle, as likewise do the other two, which for the most part are in the left side, under the Emulgent Vein, above the Muscle *Psoas*, not far from the Vertebra's of the Loins.

As these Glandules receive many Lacteal Veins, so each of them again produceth a Branch, which forthwith being joyned together, make the *Thoracick Lacteal Vein*, which ascending, as hath already been declared, carries the Chyle to the Heart.

The *Pancreas* or Sweet-bread, lies under the Stomach like a Pillow, joyned to the Gut *Duodenum*, into the which the late invented passage, from the Author, call'd *Ductus Wyrsungianus*, penetrates; in this is often Choler found, but never Blood.

The *Spleen*, which perfects the Blood, contains

an

in *Acid humor*, which it ſends not to the Stomach by the *Vaſa brevia*, but to the Liver by the *Ramus Splenicus*.

It conſiſts of a rare ſubſtance, covered with a proper Tunicle, not proceeding from the *Peritonæum*.

It is of a darkiſh red *colour*.

It joyns to the bottom of the Stomach by the veins of the ſhort veſſels, and to the Baſtard Ribs, and left Kidney, to the Caul and *Peritonæum*, and to the fleſhy part of the Diaphragm, by the aſſiſtance of Carnous Fibres.

There is no Bowel abounds with ſo many *Arteries* as the Spleen, except the Brain.

The *Nerves*, which it receives from our ſeventh pair, are diſtributed through its Tunicle, rather than through its Parenchyma.

It is not placed in the fore, but back-part of the left ſide, near the left Kidney, lying upon the Baſtard Ribs and Vertebra's, which is to be well obſerved.

The *Liver*, the Inſtrument of Blood, Mother of the great Veins, is ſituate in the right *Hypocondrium*, and covers a great part of the Stomach.

It is divided (as it were) into two parts, by the Umbilical Vein, which after-birth ſerves it for a Ligament.

It is a *great*, *thick* and *hard Body*, of a red *colour*.

It is faſtened to the Diaphragm by two Ligaments from the *Peritonæum*, and to the Muſcles of the *Abdamen* by the Umbilical Vein.

Some few Arteries it receives from *Cœliaca*, and ſeveral Nerves from the Spinal Marrow, and from our ſeventh pair.

In the right side of it, underneath, is inserted the *Vesicula Fellis*, or Gall, with the *Porus Biliarius*, the branches of both, together with the branches of the *Vena Porta*, are comprehended in a certain common Bladder, call'd by *Glisson*, *Capsula*; these branches of the *Vesica Fellis* and *Ductus Cholydochus*, or *Biliarius*, being detained in the Liver, are dispersed through its whole *Parenchyma*, every where included in the above-named *Capsula*, which is red, about the thickness of an Artery, taking its Original, as it appears, from the *Peritonæum*.

The External Branches being joyned, perforate the Gut *Duodenum*, taking two little *Arteries* from the *Cœliaca*, and *Veins* from the *Vena Porta*, call'd *Gemellæ*, together with the Bladder it self.

The *Kidneys*, which depurate the Blood, consist of a peculiar hard flesh, invested with a proper Tunicle.

Outwardly they are encompassed with Fat, and with a large, loose Coat from the *Peritonæum*.

They lie upon the Muscles of the Loins (yet the left is higher than the right) within the folding of the *Peritonæum*.

And above the Kidneys are two hollowed Glandules, call'd *Renes succenturiati*, or *Capsulæ atrabilariæ*; these are furnished with Branches from the Emulgent *Veins* and *Arteries*, and with *Nerves* from the *Par vagum*.

The *Kidney* being opened, appear the nine *Caruncula papillares*, through which the *Serum* distils into the *Pelvis*, to be carried through the Ureters into the Bladder.

The

The Ureters or the Urinary passage, whilst within the Kidneys themselves, is very large, but when come from them, is very narrow; it is furnished all along with two Coats, the innermost is proper, the outer common from the *Peritonæum*.

Within the duplicature of the *Peritonæum*, it descends downward upon the Muscles of the Loins to the Bladder, into whose Neck it is inserted; then it ascends upwards between the Membranes, where it perforates the innermost Coat; and through the same hole, together with the Ureter of the other side, enters the Bladder, which is so very little, and so straightly closed, that there needs not here any *Valve* to hinder the return back again of the Urine.

Vesica Urinaria, or Bladder consists likewise of two *Membranes*, the External is thick and fleshy, the innermost not.

It is seated between the Duplicature of the *Peritonæum*, in the Cavity of the *Hypogastrium*, which which is commonly call'd *Pelvis*.

In Women it is joyned before by its Neck to the *Vagina uteri*.

The *Neck* of the Bladder is very fleshy, and by the assistance of the Fibra's, like a Sphincter it opens and closeth the Bladder; in men it is longer, narrower, and more crooked; in Women, shorter, wider, and straighter.

The *Vessels* that bring Blood to the Bladder, are the branches of the *Hypogastrick* Veisels; it receives many *Nerves* from the seventh pare, and from the *Os Sacrum*.

The *Spermatick Vessels* yet remain, which wonderfully vary according to the diversity of the Sex.

In Men the *Spermatick Veins* and *Arteries* first appear, of each side one, which serve for the bringing of the Blood to the Testicles for its preparation.

The *right Spermatick Vein* comes from the descending Trunk of the *Vena Cava*, the *left* from the left Emulgent, and both the *Arteries* from the great Artery.

These four Vessels being very crooked, and covered by the Ureters, pass to the Testicles: but before they come to them: near, and in the process of the *Peritonæum*, are united by several inosculations, and joyning themselves with the Nerves, make one Body, which is call'd *Pampiniforme*.

The Testicle, or Stones themselves, the Organ of Seed, have each a Muscle, call'd *Cremaster*, they have two common *Tunicles*, and three proper.

The common are,

1. That wrinkled Purse which is call'd the *Scrotum*, to wit, the Skin which is thinner and softer than in other parts.

2. *Dartos*, to wit, the *Carnosa Membrana*, which hath many Vessels.

The proper are,

2. *Elytroides*, arising from the process of the *Peritonæum*.

2. *Erythroides*, from the Muscle *Cremaster*.

3. *Albuginea*, from the *Spermatick* Vessels.

The substance of the Testicles is white, soft, thin, something like to the Glandules.

Upon them with a transverse situation lies the *Corpus vermiforme*, which sensibly becoming narrower, constitutes the *Vas ejaculatorium*, which is *Epididymis*, or *Parastata*.

Vas ejaculatorium, is white and hollow, like to the

the Ureters, which carries the Seed about the neck of the Bladder into the *Veſicula ſeminales*, where it is kept till a convenient time.

Proceeding a little further, before, you ſhall find two great Glandules, in which, an Oily Liquor is contained, to mitigate the acrimony of the Urine, theſe are call'd *Proſtatæ*.

At laſt comes the *Penis* or *Yard*, appointed for the evacuating of the Seed and Urine.

Its Subſtance is peculiar to it ſelf, the like being not in the whole Body.

It hath no *Scarf-skin*, and is deſtitute of *Fat*, even in the moſt fat Bodies.

It is covered with a looſe Skin, which is double, and makes the *Præputium*, and covers the *Glans*, to which it is tied by means of the *Frœnum* or *Bridle*.

Under the Skin and fleſhy Membrane, lie the the Veſſels above deſcribed.

Near to theſe are the four Muſcles, which are the two *Erectores*, and the two *Ejaculatores*; under the Muſcles, are two *Nervous Bodies*, which make the greateſt part of the Yard.

By their fungouſneſs, rendring it either ſtiff or flacid. In the loweſt part of the *Penis* appears,

The *Urethra*, or paſſage for the Urine, conſiſting of two Coats, the innermoſt is very thin and ſenſible, the outermoſt thick and fleſhy.

In Women, the Spermatick parts in this, differ from Mens, that they are ſhorter and leſs, and by a wreathing and winding approach the Teſticles; likewiſe they communicate ſeveral Branches to the Uterine Tubes, and to the Womb it ſelf.

The ſofter *Stones* are placed on the ſides of the Womb, qualified to elaborate the Seed; they are covered with only one *Coat*, and that is proper.

They have no *Paraſtats*. The Teſticles inwardly are full of little Bladders, which both contain the Seed, and by means of the Tubes conveigh it to the Womb.

Theſe Tubes joyn to the Womb of each ſide, and to the Teſticles but only of one ſide.

Theſe have a *Cavity* conſiſting of a double coat, which alſo contains ſome little Bladders, in which many will have the Seed to be further perfected.

The *Womb*, the receptacle both of the Seed and Child, is ſituate in the middle of the *Hypogaſtrium*, call'd *Pelvis*, between the ſtraight Gut and the the Bladder.

It hath two ſtrong and thick *Coats*, the firſt, which comes from the *Peritonæum*, the other is proper, and between both many fleſhy Fibres.

It is conveniently divided into the *Fundus* or *Bottom*, the *Orifice* and the *Neck*.

The *Fundus*, the *Globous* part of the Womb, hath four *Ligaments*; the two uppermoſt are broad and membranous, which are joyned to the *Os Ilium*, the two lowermoſt are red and round, and pervious to the *Clitoris*, thence like a Gooſe-foot, deſtitute altogether of their hollowneſs, they ſpread themſelves upon the fore-part of the Thigh.

The *Orifice* of the *Womb*, which at one time can very ſtraightly cloſe it ſelf together, yet at another is very dilatable, hath in its lower part a *Tubercle* or knotty ſubſtance, as alſo many little holes.

The *Cervix* or *Neck of the Womb*, appointed to re-

ceive the *Penis*, is very much wrinkled within, and almoſt eight inches long. To the Diſſector comes firſt in view the *Meatus Urinarius*, or the the paſſage for the Urine, which is ſhort & ſtraight, then in this Cavity is the *Clitoris* ſeated, which is ſomething in ſoftneſs or hardneſs reſembling to a Mans Yard.

To this joynes the *Hymen*, perforated in the midſt for the paſſage of the Urine and Courſes, to which joyn four *Caruncles*, call'd *Myrtiformes*; then follows the *Ala*, *Nymphæ*, or wings which defend it, and the *hairy Lips*.

Chirurgical Conſiderations.

1. The *Coats* of the *Peritonæum* grow very thick in *Hydropick* perſons, nay in proceſs of time they acquire a *Cartilaginous* hardneſs, which is very neceſſary to be known; in a Paracentheſis or opening of the *Abdomen*, there oftentimes ſuddenly follows a *watry ſwelling* in the *Cod*.

After a Paracentheſis made by the formerly deſcribed Inſtrument, the reaſon of it and the paſſage are true, that the Water by little and little ſinks down above the proceſs of the *Peritonæum*, in the ſpace between the *Peritonæum* and the right Muſcles of the *Abdomen*.

2. Sometimes between the foldings of the Caul is Wind detained, the cauſe of long continued pain, which brings along with it fear alſo of a future abſceſs. In this caſe, beſides *Sudorificks*, we uſe diſcuſſing Oyls and Plaiſters. In the ſame folding is *Water* alſo ſometimes *included*, which promiſeth no certain hope of Cure.

Steatoma's and other Abſceſſes are often gene-

rated in the *Caul*, by reason of its great quantity of Fat, and its many Glandules, which are very difficultly cured.

3. The Guts, which move themselves variously like to Worms, sometimes they *fall inwardly* into one another, especially when afflicted with great pain; in this case the Excrements cannot pass to the Fundament: this Malady is call'd *Miserere mei*, or the Iliack Passion; ordinary means effecting nothing, a great Cupping-glass without Scarification, is often to be applied to the Part affected, and taken off again; but whether it is not better to divide the Muscles of the *Abdomen* and the *Peritonæum*, and draw out with the Fingers the fallen-in Gut, than to suffer the Patient inevitably to die.

4. The *Mesentery*, from it self, and also from the great number of the Glandules is subject to *Inflammation*, *Tumors*, *Ulcers*, and to *Corruption*. These Diseases, seeing they are very difficultly distinguished from others, require an experienced Physitian; we likewise speak the same of the *Sweet-bread*, and of the *Spleen*: Yet in the mean time, I will communicate to you this Plaister, whose virtues I have often experienced in the Cure of the Tumor of the said Parts.

Take Gum *Caranna*, *Ammoniacum*, of each a dram; Quicksilver kill'd with Turpentine, half an ounce: Make it into a Plaister.

5. The *Ligaments* of the *Liver*, which joyns it to the Diaphragm, and to the Sword-like Cartilage, are often so much relaxt, that the Liver descends to the Region of the Navel; this we remedy with this Plaister.

Take Roots of Bistort, three ounces; Bole Armenick,

nemick, two drams; Cummin-seeds, a dram; Gum *Galbanum*, an ounce; *Ol. Nucistæ* expreſt, a dram: Make it according to Art into a Plaiſter.

Moreover the *Liver* is not freed from *Inflammations*, *Ulcers*, nay not from *Gangrene* it ſelf.

6. The *Gall* may be broke from an extream Cough, a Stone alſo, nay ſometimes many, are generated in it.

I was laſt year with a certain *Scot*, who in the ſpace of four weeks voided two hundred Stones and more by Stool, and was cured only by the uſe of the following purging Conſerve.

Take Electuary of the juyce of Roſes, an ounce; Powder of Jalop, a dram; Spirit of Salt, a ſcruple: Make it into a Conſerve. Let him take each day or each other day the quantity of a Nutmeg.

7. For *Wounds* and *Ulcers* of the *Kidneys*, our Chirurgery furniſheth you with ſufficient Medicines.

The *Ureters* are alſo ſubject to Exulcerations, but are cured by the ſame means, which are proper in *Ulcers* of the Kidneys: If they are broke either by a great Stone, or other Cauſe, the Diſeaſe is accounted incurable.

8. Beſides Stones, *Worms* alſo are generated in the Bladder, which may be expelled by *Diuretick* mixt with thoſe things that kill Worms.

Take *Aqua Antinephritica*, an ounce; Water of graſs, two ounces; Spirit of Salt, ſix drops; Corallin, a ſcruple; Syrup of Wormwood, an ounce: Mix them. Let the Patient take one half in the Morning, the other in the Evening.

This injection alſo is convenient, it bringing them forth in a ſhort time.

Take

Take Holy-Thistle-water, six ounces; Mirrhe, Aloes dissolved in Spirit of Wine, of each a scruple; Honey of Centaury, half an ounce: Mix them.

9. The *Testicles* may as well as the other parts be inflamed; where, besides the general means, these outwardly are convenient: In the beginning let this Cataplasm be applied.

Take Powder of Red-Roses, Myrtles, Balaustians, of each two drams, Barley-Meal, two ounces and an half; Oyl of Roses, Elder-Vinegar, of each an ounce; Red-Wine, as much as is sufficient to make it into a Poultice.

In a vehement pain.

Take Meal of Linseed, Barley and Fenugreek, of each an ounce; Leaves of Henbane, a handful; Mallows, half a handful; Hogs-grease, an ounce; Oyl of Poppy-seeds, an onnce and half; Milk, as much as sufficeth to make it into a Cataplasm.

If after the Inflammation an Ulcer follows, let the Chirurgeon assist Nature with Suppuratives, the following Plaister is excellent to mollifie, ease pain, and to suppurate, which is also very good in any other Tumor.

Emplastrum Filii Zacharia.

Take yellow-Wax, Oxes-Marrow, Hens and Ducks-grease, of each a pound, the Mussilage of Linseed, Marshmallows, Fenugreek, of each four ounces, Oyl of Linseed, as much as sufficeth to make it into a Plaister.

The matter being come to suppuration, must be discharged, which the Chirurgeon may do with a Launcet; for I cannot commend to him here a potential Cautery, from which I have observed very

ill

ill ſucceſs: Let the Orifice be little, and penetrate only the Tunicles. For in this caſe although the matter be good, nevertheleſs the Diſeaſe is dangerous, and eaſily degenerates into a *Cancer* or *Gangrene*, which cannot be taken away more conveniently than with a Knife, and muſt be done at the firſt appearance of it; then let the Chirurgeon endeavour to cure the Ulcer as ſoon as poſſible, after the following manner; Let the Part be defended from all cold, and continually corroborated by Medicines, that the natural heat may be preſerved in it: This Lotion uſed warm, is good.

Take Flowers of Balauſtians, Red-Roſes, Myrtles, of each two pugils, Aloes, a dram; Frankincenſe, two ſcruples; Plantane-water, three ounces; Red-Wine, as much as ſufficeth: Boil them, and ſtrain them.

This being uſed, apply the following Ointment, putting over it a Plaiſter or Cataplaſm moderately diſcuſſing.

Take prepared Tutty, Ceruſe waſht, of each two drams, Red-Lead, Litharge of Gold, of each a dram; Sarcocols, three drams; Burnt-Lead, two drams; *Unguentum Apoſtolorum*, half an ounce; Oyl and Wax, as much as ſufficeth to make it into an Ointment.

10. If the *Yard* be wounded, for the moſt part it is mortal: This Ointment is very excellent.

Take waſht Ceruſe, three drams; Mirrhe, Litharge, of each a dram and half; Sarcocols, prepared Tutty, of each a dram; Tragaganth, two drams; Oyl of Roſes, as much as ſufficeth to make it into an Ointment.

An

An *Inflammation* of it is cured in the same manner as an Inflammation of other sensible parts; but if an External *Ulcer* should happen, the Cure must be performed both by Internal and External Medicines, lest it contracts a Malignity, and degenerates into a *Sphacelus*.

Take Litharge, half an ounce; Burnt-Lead, three drams; prepared Tutty, two drams; Aloes, a dram and half; Pine-Bark dried, four scruples; *Lapis Hæmatitis*, a dram; Seeds of Dill burnt, of Gourds burnt, of each two scruples; Oyl of Roses, Quicksilver, of each three drams; Wax, as much as sufficeth to make an Ointment.

But if it yields not to this by reason of its foulness,

Take Verdigreece, half a dram; Water of Plantane and Roses, of each two ounces; White-Wine, four ounces; Spirit of Wine, an ounce: Mix them, and boil them a little.

To this may be added, Mercury precipitate, if there be occasion.

A *Sphacelus* in this case, hath no certainer cure than extirpation in part, or wholly, lest the mischief creep inwardly, and kills the Patient.

How the *Internal Ulcers* of the *Yard* ought to be cured, we have set down in the Chapter of particular *Ulcers*: But in this we may describe this Medicine, by the use of which a Cancerous Yard was cured.

An Unguent of Peter Baierus.

Take the juice of the tops of Bramble, Stalks of Roses, Vinegar, of each two ounces; Frankincense, Mastick, of each three drams; Litharge of Gold,

Gold, an ounce; Sack, four ounces; Juice of Housleek, three ounces; *Aqua vitæ*, four ounces: Verdigreece, two ounces and half; Vitriol, burnt-Alom, of each a dram and half; Camphire, a dram; Oil of Roses, four ounces: Powder those things that are to be powdred, very fine, and being searched, let them boil all together upon a gentle fire, except the Camphire, which is to be put in at the end, to the consumption of the Juices, then add the Wax, and make it into an Ointment.

11. The *Spermatick Vessels* sometimes in Women, are so greatly obstructed, that together with the Testicles in the side of *Hypogastrium*, they swell to the bigness of ones Fist.

12. In the *Tubes* of the *Womb*, the Womans Seed is sometimes corrupted, from which arise grievous Symptoms; the Courses being for some Months obstructed, oftentimes there follows a Dropsie; the Water here collected, we have observed in dead Bodies that have been opened, to flow directly through the *Tubes* into the *Duplicature* of the *Peritonæum*.

13. The *Womb*, from the preternatural afflux of Blood, is often inflamed, especially in lying-in Women, and in those whose Courses flow disorderly, this Inflammation oftentimes is changed into an Abscess, if negligently handled, whose Cure belongs to the Physitian: But a *Sphacelus* is incurable. For what the Ancients relate concerning the extirpation of the Womb, to wit, that it may all be taken off without any great danger, is to be reckoned amongst their other Errors; but whether this *Animal* in living Creatures, this necessary

neceſſary part, joyning to ſo many other parts, and furniſhed with ſuch abundance of Arteries, may be cut out without danger of Life? The ſame thing I believe hath hapned to them in this caſe, as hath happened in the deſcribing and curing the falling down of the Womb, who here and there have taken the extended Tunicles of the *Vagina Uteri* for the Womb it ſelf; for I eaſily grant theſe Tunicles may without any great danger be taken away: But I truly eſteem a *Sphacelus* of the whole Womb to cauſe certain death.

14. The Neck of the Womb is ſubject to *Hemorrhoids* in the ſame manner as the ſtraight Gut is; theſe flowing, may be diſtinguiſhed from the Courſes by theſe following ſigns; in the flowing of the Courſes, we can obſerve no Branches of the Veſſels in the Neck of the Womb, they come out of the Womb it ſelf, and they cauſe no pain, except in the *Hypogaſtrium*; theſe Veſſels by which the Evacuation is made, are the *Hypogaſtrick* and *Spermatick Arteries*; but the *Hæmorrhoids* are the Branches of *Vena pudenda*, they may be known both by the ſight and feeling, and there is no pain but in the privy part it ſelf: They ought to be treated in the ſame manner as the other *Hemorrhoids* are; to eaſe pain, this Ointment is excellent.

Take Muſſilages of the Seed of Quinces, Marſhmallows, of each half an ounce; Saffron, Oyl of Roſes, Hens-greaſe, of each a dram, the Yolk of an Egg: Make it into an Ointment.

This

This Mixture is excellent.

Take Litharge of Gold, waſht Ceruſe, burnt-Lead, of each a ſcruple; Purſlane-water, five ounces: Mix them.

Let the *Hæmorrhoids* be waſht with it, and let a Linnen Cloth dipt in it be applied to the Part affected.

The End of the fourth Book of the third Part.

The

The *FIFTH BOOK.*

Of the *Joynts.*

CHAP. I.

Of the Hand.

UNder the name of the *Hand*, we comprehend also the *Arm*, whose Teguments, both proper and common, as also its Vessels, are already sufficiently described.

It is commonly divided into three parts.

1. The *Shoulder.*
2. The *Cubit.*
3. The *Hand, properly so call'd*

The *Shoulder*, or upper part of the *Arm*, consists of one *Bone*, and nine *Muscles.*

The *Muscles* are,

1, 2. *Deltoides*, and *Supra spinatus*, which two raise it upward.

3, 4. *Anisealptor*, *Latissimus*, and *Rotundus major*, which two pull it downward.

5, 6. *Pec-*

5, 6. *Pectoralis & Perforatus*, or *Coracoidæus*, which two draw it forward.

7, 8, 9. *Infra-ſpinatus*, *Rotundus minor*, and *Transverſus*, or *Subſcapularis*; which three move it backward.

By theſe three laſt moving together, the Arm is as it were turned about, and obliquely outwardly raiſed up.

The Bone is great and long, its Head or *upper extremity* is inveſted with a Cartilage, Membranous Ligament, and four Tendons, and furniſhed with a particular Cavity, in which the Tendon of the Muſcle *Triceps* lies.

The *Lower Extremity* is like unto a Pulley, which permits the Cubit to be bent very much inwardly, but not to extend beyond the right Line.

The *Cubit* conſiſts of two Bones, which are by proper Muſcles properly moved, which although out of order, we are forced to ſet down in this place.

The Lower Bone, which is greater and longer than the other, is call'd *Ulna*; in its upper extremity are two triangular proceſſes obſerved, which are call'd *Roſtra* or *Glandes*.

The Lower Extremity ends with a round *Knob*, to which is joyned a ſharp Proceſs, which is call'd *Styloides*.

It is moved by four Muſcles, of which two are *Flexors*.

1. *Biceps*.
2. *Brachiæus*.

Two *Extenſors*.

1. *Longus*.
2. *Brevis*,

The upper Bone, which is leſs and ſhorter, is call'd *Radius*, or the *leſſer Focil*, it is received in the upper part by the *Ulna*, in the lower part it receives the *Ulnæ*, in the middle they are a little diſtant from one another, which ſpace is yet fill'd with a thin Ligament.

It is alſo moved by four Muſcles, whereof two are *Pronatores*, or pullers down.

1. *Rotundus*
2. *Quadratus.*

The other two are *Supinatores*, or raiſers up.

3. *Longior.*
4. *Brevior.*

Some add to theſe two other Muſcles, but they are very ſeldom found, and diverſly deſcribed.

The *Hand* is divided into three parts, the *Carpus*, or Wriſt, the *Metacarpus*, or the diſtance between the Wriſt and Fingers; and the *Fingers* themſelves.

The *Carpus* hath four Muſcles.

Two *Flexors*, the *Cubitæus*, and the *Radius internus.*

Two *Extenſors*, the *Cubitæus*, and *Radius externus.*

Under theſe lie *eight* little *Bones*, as yet without name, which are in the firſt years Cartilaginous and ſoft, but afterwards become harder; they are tied and joyned together with ſtrong *Ligaments.*

The *Metacarpus* hath two *Muſcles*, call'd *Palmares, longus & brevis.*

And four *Bones* faſtned to the *Carpus* by the aſſiſtance of the Cartilaginous Ligaments.

The Fingers conſiſt of fifteen Bones, which as yet have no certain names given them, and fourteen Muſcles; whereof, Two

Two are *Flexors*, *ſublimis & profundus.*

Two *Extenſors.*

Four Adductors, *Lumbricales.*

Six Abductors, or *Interoſſei.* Three are External, and as many Internal.

Beſides theſe, the *Thumb* and *Little Finger* have a particular *Flexor* and *Extenſor.*

Theſe are beſides to be conſidered in the *Hand.*

1. The *Armilla Membranoſa*, which is a round Ligament, comprehending the many Tendons of the Hand, as it was in a Circle, eaſily diviſible into many others.

2. *Vagina Membranoſa*, which hold in the Tendons contained in the Hand.

3. *Fiſſura oblonga*, framed in each Tendon, for the paſſage of the Tendons of the Muſcles moving the third Joynt; this ſerves in nature of a Pully.

4. *Oſſa Seſamoidea*,

Chirurgical Conſiderations.

1. The Shoulder oftentimes is broken or put out of joynt, but is oftner afflicted with a *Cathar* and *Gout.* In a cold *Gout*, I never found any thing more efficacious than the Stiptick Plaiſter of *Crollius*, mixt with Oyl of *Bricks* or *Philoſophers*; as alſo the following Plaiſter.

Take Naval-Pitch, Colophony, of each three ounces; Muſſilages, of Marſhmallow-roots, two ounces and an half; *Ammoniacum*, *Galbanum*, Maſtick, Mirrhe, Frankincenſe, of each an ounce and half; *Propoleos*, Miſſeroe of the Oak, round Birthwort, burnt Braſs, yellow-Wax, Turpentine, of each three ounces; Oyl of Earth, two

ounces: Make it into a Plaister according to Art.

In a *hot Cashar*, or the like *Gout*, I have always found this Fomentation of singular use.

Take Vitriol, white and green, of each half an ounce; prepared Nitre, six drams; Crude Alom, one dram; Mirrhe, two drams; *Opium*, a dram; White-Wine, half a pint; rectified Spirit of Wine, ten drams: Elder-Vinegar, three ounces: Mix them for a Fomentation.

Under the *Arm-pits*, Venereal Buboes appear as well as in the Groins.

2. Often *tough* Phlegm seizeth upon the Joynt of the Shoulder and Elbow, from whence comes a stiffness. I have learnt by experience to esteem much in this case of Balsom of *Peru*, as also of the following Ointment.

Take Fox-grease, and Rams-grease, Fresh-Butter, of each two ounces; Oyl of Earth-worms, an ounce; rectified Spirit of Wine, four ounces; boil them to the consumption of the Spirit of wine, then add Oyl of Rosemary, of Amber, of each three drams; of Tiles, or of the Philosophers, two drams: Mix them, and make it into an Ointment.

One or more of the little Bones of the *Carpus* oftentimes are *dislocated*, which, if not presently reduced, becomes an incurable evil.

A *Ganglion* is here very frequent, besides the *Cashar* and *Gout*, whose cure we have but just now taught.

4. In the *Metacarpus* and Fingers, both above and below meet many Tendons, which are easily injured in Wounds and Ulcers, which is carefully to be observed, lest a Palsie follows: In which

no

no other Medicines are needful, than what we have already in the foregoing declared: But theſe are chiefly to be conſidered of; 1. That the Bandage is not to be bound too hard. 2. You muſt not put in the Probe too deep, nor too often. 3. The Hand and Fingers are to be placed upright, not depending. 4. Theſe Parts are eaſily affected with a *Sphacelus*, which theſe Signs certainly denounce: When there is no matter in due time, the Lips in the beginning are dry, or yield a little thin moiſture; the heat, pulſation, and redneſs is greater here, than in the fleſhy parts, afterwards the Lips are turned in, and become livid, and at length black. In this caſe, all thoſe Medicines are to be applied that may put a ſtop to the *Gangrene*, and as formerly we have ſet down.

CHAP. II.

Of the Foot.

THe Foot is alſo divided into three parts; to wit, into the *Thigh*, *Leg*, and *Lower Foot*.

The *Thigh* hath but one Bone, to whoſe motion ſerves fourteen *Muſcles*.

Two Flexors, *Pſoas* and *Iliacus*.

Three Extenſors, *Glutæus Major*, *Medius* and *Minimus*.

Three Adductors, *Triceps*.

Six Abductors, *Quadrigemini & obturatores duo.*

The Abductors and Adductors working together, rowl about the Thigh.

The Thigh-Bone is the greatest of all the Bones of the Body, outwardly it buncheth forth, and is a little bended inwardly, and so descends internally oblique to the Knee.

It hath three *Processes*, easily separable in Infants.

The Leg consists of two Bones; the greater of which, is in the inside, and is call'd *Tibia*, or the *greater focile*; the lesser, which is in the outside, is call'd *Fibula*, or the *lesser Focile*; both very much resembling the Bones of the Cubit, they are a little distant one from the other, but are tied together by a Ligament.

It is moved by eleven *Muscles*, which are,

Four Extensors, *Rectus, Cruræus, Vastus duo.*

Four Flexors, *Biceps, Semimembranosus, Semitendinosus, Gracilis.*

Two Adductors, *Longus* and *Popliteus.*

One Abductor, *Fascialis.*

Between the Thigh and Leg lies the *Patella* or *Knee pan*, in Infants Cartilaginous, in old people, hard and strong, placed on the outside of the Joynt.

The Foot is divided into three parts, the *Tarsus*, *Metatarsus*, and *Toes.*

The *Tarsus* is moved by six Muscles, viz.

Two Flexors, *Tibiæus anticus & Peroneus.*

Four Extensors, *Biceps*, two *Gemelli*, and *Soleus*, to which many add a fifth, *Tibiæus posticus.*

Three

Three of these Extensors from one very strong Tendon, which is called *Chorda Hypocratica.*

It is made up of seven *Bones*, which are,

1. *Talus*, or *Astragalus.*
2. *Calx*, or *Os Calcis.*
3. *Os Naviculare*, or *Cimbiforme.*
4. *Os Tessera*, or *Cuboides.*
5, 6, 7. *Ossa tria Cuneiformia*, or *Sphenoides.*

The *Metatarsus* consists of five Bones.

The *Toes* have fourteen Bones; for the great Toe hath but two Joynts.

The *Metacarpus* hath no Muscles, except *Plantaris*, which is not unlike *Palmaris.*

The Muscles of the Toes are seventeen, to wit,

Two Flexors.

One Extensor of the four Toes, for which use it is furnished with a fourfold Tendon.

Four Adductors, or *Lumbricales.*

Ten Abductors, or *Interossei.*

To the great Toe are peculiar,

One Flexor.

One Extensor.

Two Adductors.

One Abductor.

Here also, as in the Hand, are observed the *Ossa sesamoidea*, which are alwayes placed between the full grown Joynts, partly that they may corroborate the Joynts, partly that they may defend the tender Joynts; in old people they are alwayes numbred from ten to twenty, never in Children.

Chirurgical Consideration.

The Foot in its natural constitution, as also in its Diseases, hath many things agreeing with the Hand, therefore it would be superfluous to repeat them over again.

1. Considerable here is the *Sciatick pain*, caused from a sharp Humor gathered in the Joynt, where the Thigh-bone joyns with the *Os Ischium*, when the *Ligament* tying these Bones together, is from such an Humor relaxed, the Bone recedes from the natural places, and brings upon that Part a lameness: If the Bone or Cartilage be corroded, and the Vessels compress, there follows an Atrophy of the Legs, and sometimes of the whole Body.

2. *Tumors* in the *Knee*, are very dangerous and hard of Cure, by reason of the firmness of Muscles, the great number of Ligaments, Tendons, and Bones, and the cold and dry nature of the Parts, not being of force sufficient to dissipate the moisture; therefore 'tis most necessary to assist it with warm Medicines as soon as possible; and if any signs of Suppuration appear, forthwith let it be opened, lest otherwise the Patient becomes lame, the Part wastes, and at last happens Death it self. Upon the opening of the Abscess, for the most part there follows a gleet of some Humor, which renders the Cure very difficult: For this I commend the often praised Restorative Powder.

3. A great *Tendon* is inserted in the *Calcaneum*, or Bone of the Heel, which being wounded, or much contused, brings Convulsions, and Death it self.

About

About this place comes Kibes, whoſe cauſe is intenſe cold or heat with drineſs: Here firſt are obſerved Fiſſures in the Skin, then follows an Ulceration: All fat things and Plaiſters profit here, eſpecially the following.

Take Powder of Galls, of round Birthwort, of each half a dram, red Lead, a dram; Mercury ſublimate, ſix grains; Litharge, Myrrhe, of each a dram and half; Camphire, a ſcruple; Frankincenſe, two drams; green Wax, as much as ſufficeth to make it into a Plaiſter.

In the room of green Wax, you may take the Fat of Deer, or of Rams.

4. The Fingers or Toes being frozen, muſt be rubb'd with Snow, or with a bruiſed frozen Turnep; then this following Plaiſter is much commended.

Take Hogs-greaſe, freſh Oyl of Olives, of each an ounce; white Wax, two ounces: Boil them a little, and make a Plaiſter.

5. Iſſues are often made in the Joynts; we have formerly declared the place: In the Arms, between the Muſcle *Deltois* and *Biceps*; in the Thigh, two fingers breadth above the Knee in the inſide; in the Leg, the uppermoſt, two fingers breadth below the Knee; the lowermoſt, two fingers or three above the Ankle. That you may make theſe Iſſues without pain, inſtead of a Concluſion, take this Cauſtick, which works without pain; which is alſo very much to be commended in ſordid and cancerous Ulcers, and in Excreſcencies.

Take Crude Brimſtone, white Arſnick, Crude Antimony, of each two ounces; the Brimſtone being melted by a gentle fire, and ſtirred about with

with a *Spatula*, add the Arſnick and Antimony powdred, and mix them whilſt they are incorporated with the Brimſtone, and look red. Afterwards,

Take of this Mixture, an ounce; *Caput mortuum*, of Vitriol, half an ounce: Mix them, and make a Powder; let it be waſht ſix times in Spirit of Wine, and dried for your uſe.

A TREATISE OF THE PLAGUE.

THE Plague is a Diſeaſe, whoſe Nature is not to be comprehended by us; the Cauſe thereof ſeems to to proceed from a Spirituous and Infectious Vapour, which is powerful enough to make a ſudden diſſolution of the Conſiſtence of the Blood, by which means the Heart is deprived both of ſtrength and life.

I do aſſert that the Nature of it is not to be comprehended by us, as well becauſe it is a Puniſhment inflicted on us by the immediate Hand of Almighty God, who vouchſafes not that his Incomprehenſible Wiſdom and Eſſence (which is ſometimes faintly deſcribed to us) ſhould be narrowly pryed into by his Creatures; as alſo that it is in it ſelf ſo mutable, that if we ſhould ſeriouſly

seriously recollect our selves, and recount the several Pestilences wherewith all former Ages have been visited; we shall not thereby be able to instance in two of that whole number which have agreed with each other in all Circumstances: From whence we may easily infer, that in the Cure of this Disease, an Experienced Physitian may much more safely follow the Dictates of his own Reason, than adhere strictly to the Method & Prescriptions of others. For although it doth sometimes by the more remarkable Symptomes sufficiently evidence it self, yet we cannot likely discover its Nature and Essence, although we should the most industriously attempt it.

But that we may cautiously enquire into it, we must know that it is sometimes not accompanied by any Fever: And it is necessary, that what Physitian soever is ignorant of this, should either by perusing good Authors, or his own Experience, acquaint himself throughly with it. I have been sent for to several Patients my self, who although they appeared otherwise in good health, not refusing their Meat, nor disturb'd in their sleep, have nevertheless had Buboes arising in their Groin, on their Neck, under their Arm-pits, or behind their Ears, which have apparently discovered a greater Malignity than could be discerned in those Buboes, which in other persons have been attended by a violent Fever: And many hereupon who have been incredulous, and lightly regarded the cautions which I have given them upon this account, have with great danger to themselves, experimented, that as soon as those Buboes have sunk down, the Pestilential Symptoms which have appear'd, have been very dreadful, and much more dangerous than in those

those that have carefully used the Means prescribed to them, who have been also much more easily and speedily cured than the other.

Sometimes the Plague is accompanied with a Fever; and again, there are some Pestilent Fevers without the Plague.

To distinguish this Fever from the Plague, I used to observe, that they that are seized with it, complain of pain in their Head and Stomach, which sometimes is dispersed over the whole Body; sometimes it confines it self to the Armpits, the Neck, the Parts behind the Ears, or to the Groin. To outward appearance, there is not the least swelling. If the Patient by such means as is requisite be provoked to sweat at the beginning of the Disease, the pain utterly ceaseth, and in a few dayes he will be perfectly restored to his health, the Disease not having at all discovered it self by any outward Symptoms. Why such a Fever should be accounted a Species of the Plague, I see no reason; But there is no one but will confess it to have seized on that Body on which Buboes, Carbuncles, and Spots do outwardly appear.

The cause of the Plague is either *Internal* or *External*; but unto which soever we impute it, it is necessary to conclude, that there is in it a power of dissolving the natural Consistence of the Blood, and depriving the whole Body of its strength.

As to the *Inward Cause*, which is *Meat* and *Drink*, it is evident to all, that it cannot produce in any Body whatsoever so great and sudden a change;

change; but it is most certain, that by a long and continued course of bad Diet, the Blood may by degrees be after such a manner dissolved, weakned, and corrupted, that some part of it assuming to it self a malignant quality, a man may be surprized by a sudden Disease, and sometimes be deprived of life it self; which hath been observed in sick persons at several times, when there hath been no contagion in the place, nor any suspected, who have been troubled with perfect Buboes, and other Symptomes of the Plague, much more intolerable than others have been at any time when the Air hath been infected.

As to the *outward Causes*, every one confesseth that there are such; but their Nature is known but to few: The Chymists, who are able by the force of Fire distinctly to separate the Parts of simple Drugs, endeavour to find the Original of the Contagion in a *Volatile Salt*, which suddenly dissolves the fixed Salt of the Blood; which hath indeed some appearance of truth, though it will not be relished by all men.

If you enquire into the Cause hereof from others, their answer will be various, but most of them very idle and impertinent.

It hath by some been thought probable that a Plague might proceed from the *Heavens*; they affirming that the *Stars* do acturate the Sublunary Bodies, both by the influence of their Light, and by several other qualities inherent in, and peculiar unto them. But the Conjectures raised from hence, are very uncertain, and the foundation of them unsecure. We are not ignorant of the Fopperies of Astrology, and of the vanity of those Predictions, which have no other Foundation

dation than the several Courses, the Conjunction and Opposition of the Stars; which are all so frivolous, that we cannot think it worth our labour to refute them.

We acknowledge that the *Air* may be several wayes corrupted; from whence the Vapors which have been received from the Earth, are sent down again amongst us, which like Fire may inkindle our Blood, *Corrupt waters*, *Carcasses* either not at all buried, or else shallowly interred; the South-Wind, which may be supposed to promote the Putrefaction; *Men* already infected, and successively imparting the Contagion to the sound, and by that means spreading the Venom through the Bodies of Men, and the Air it self.

This Pestilential Infection may likewise for a long time lie couched and concealed in *Straw* or *Stubble*, amongst *Garments*, *Hangings*, and the *Furniture of Beds*; which we have sometimes observed strangely to impart their Malignity to to those that have handled them, or approached unto them.

But all these things only inform us of the means by which this Pestilential Poyson is conveyed unto us; but no one hath as yet declared what it is, and wherein its Nature doth properly consist.

The Symptoms of it are these. The sick Persons are seized with a shivering all over their Body, which is presently followed with an inward heat, which is oft-times very intense, yet without any great thirst; sometimes the thirst is excessive, and the Fever moderate. But whether the heat of the Fever be great or small, it is most commonly accompanied with a dryness of the Tongue, and

and an Urine of the same constitution which you might expect from a man in perfect health: They are taken sometimes with a great drowsiness, sometimes with a Delirium, or with an excessive pain in the Head; and in this case, the White of the Eyes appeareth of a Saffron-colour, and they are more wakeful than is consistent with their ease and quiet: great pain at the Heart, the Pulse seems small, if not at first when you touch it lightly (for then it oftentimes appears to beat high) yet at least when you press it closely with your Fingers. The strength fails in the beginning of the Disease, and decreaseth much more visibly than in the most burning Fever, which hath no Malignity attending it. Some are taken with a *Diarrhœa*, which can by no means be stopt: Others bleed much at the Nose, the Eyes, the Ears, or Mouth; some at the Yard or Womb. Some are troubled with a continual Vomiting, others with a Nauseousness. On some Bodies there appear red or purple spots; and on others Buboes behind their Ears, on their Neck, under their Chin, in the Groin, and under the Arm-pits: In some there break forth red Wheals or Pushes, in others white Bladders, or Carbuncles. And whersoever these Bladders, Buboes, Carbuncles, *&c.* do appear, they are a most certain sign of the Plague, although the bigness of them may be inconsiderable; especially if they either accompany, or are Consequents of a Fever.

As to the Prognosticks, we must consider, that the Plague is a very treacherous Disease, and whilst it flatters us most, it intends us the greatest mischief. A Bubo is less dangerous than a Car-

Carbuncle; and a Carbuncle than the Spots, which very seldom portend less than present death wheresoever they are display'd.

A Bubo behind the Ears, on the Neck, or under the Arm-pits, is more dangerous than that in the Groin.

Carbuncles on the Hands and Feet, may by some be thought less pernicious, because they are more remote from the Heart; but since they happen amongst many Nerves and Tendons, they are more to be feared than those which appear in other parts of the Body which are better covered with flesh.

A Carbuncle arising after a Bubo, is a sign of Death. If a Bubo or Carbuncle appear before the Fever, there is less danger than if they follow it at a distance, and arise slowly.

A blew Circle encompassing the Bubo the second day after its appearance, is a sign of Death.

If a Bubo suddenly disappears, the state of the Patient is dangerous, unless Nature dispatcheth the Malignant Humor to some other Part.

Thus we have often observed, that upon the retreat of *that Morbifick Matter* which hath caused a Bubo in the Groin, there hath appeared a Gangrene in the Foot, and on the same side which was before affected, and many have by that means escaped.

If a Cupping-glass applied to the Patient, raiseth no Blister, we may reasonably conclude his condition to be desperate.

It is an infallible sign of Death, if after Cauterization, or the application of a Cupping-glass, the Carbunule abates not in 12 or 24 hours, as likewise if there is no moisture proceeding from it;

but if a Bladder appears, or any ſeparation of the matter be made (which is ſo much the better, by how much it is the greater) with a ſufficient purulency, *the Patient is then paſt danger.*

A Carbuncle which ſeems to have a little tail, or Puſh at the end of it, is very dangerous, as are likewiſe thoſe which look white; which, unleſs the Fever doth very much abate, are certain forerunners of Death.

If the Patient that hath a Bubo in his Neck, or behind his Ears, be troubled with a pain in his Throat, and a difficulty in ſwallowing, and no conſiderable Inflammation appear, we have always found it a certain Rule, that in this caſe he outlives not 12 or 15 hours.

Sleep more ſound than ordinary, *Deliriums*, waking often in the night, inflammation of the Eyes, pain at the Heart, a trembling and convulſion of the Joynts, are all very dangerous Symptoms, but do not alwayes portend Death.

A great Fever without a pain at the heart, is not ſo dangerous as a leſſer, which is accompanied with that Symptom.

The greatneſs of the Danger may ſometimes be judged from the great dryneſs of the Tongue.

If by the adminiſtration of *Sudorificks*, Sweat is not provoked, the Patient uſually miſcarrieth.

A Flux of Blood was heretofore held dangerous in all Plagues; but in our Age, all that can either bleed at the Noſe, or have their Menſtrua's, come off ſafe: We have no preſident of any that have piſſed Blood; but a *Diſſentery* is the ſign of an approaching Death.

It

It is very certain, although it but seldom happens, that incurable Carbuncles do break out about the Eyes, Nose and Stomach, and even amidst the Entrails themselves.

If they seize on the Bladder, they become mortal to the Patient, and put him to excessive pain.

I can instance only in one, who after he had for 30 hours or more been troubled with the Spots, at length, after exceeding great pain, accompanied with a *Delirium*, he voided first Blood, and after that, *a purulent matter through his Yard*, by which means he was restored to his health; I conjectured that there was a Carbuncle in the case, which seized not on the Membranous part of the Bladder, but on the Neck thereof.

As to the *Cure*; *Blood letting* is very prejudicial to those that already have the Plague, and dangerous to such that would prevent it.

The Poison oftentimes lies hid within the Body for some dayes, weeks, or months, before it discovers it self by seizing on the conveyances of the Blood. Wherefore I would advise you seriously to consider, if by opening a Vein, you invite it immediately to the Heart, whether the diminution of Blood, Spirits and Strength, which is effected by this means, be not the Cause why the Heart is suffocated and deprived of that vigour which it should make use of to repulse the Enemy. I confess some Experienced *Physitians* of good credit, have reported, that in hot Countries, there is no better means for restoring a Patient visited with the Plague, unto his health, than that of opening a Vein, provided it be done cautiously, and at the beginning of the Disease;

but whosoever have attempted it in colder Climates, have quickly learnt by experience, that it ought to be forborn.

Purging, which is oftentimes very necessary in other gentle Diseases, is excluded by the Malignity of this. But every one is not quick-sighted enough to discern when it is requisite to be done, and when to be forborn: Moreover, it is evident, that in a Malignant Disease, the Physick which is administred to a Patient, ought to be more mild and gentle than at other times; for besides that the Body cannot then bear strong purgations, a *Dysentery* is oftentimes the consequence of them. I have when I have been fully perswaded that there was no Malignity in the Disease, oftentimes used this, or some such like Potion with good success, *viz.*

Take Rhubarb, a dram and half; Senna, two drams; Cream of Tartar, a dram; Scorzonera-Roots, half an ounce; Aniseeds, half a dram; Boil them in Holy-Thistle-Water, and to three ounces of the strained Liquor, and Syrup of Succory, with Rhubarb, six drams; Spirit of Salt, a little; Confection of Alkermes, a scruple: Make it into a Potion.

I never adventured to prescribe any thing Purgative to such as have been taken with the Plague, before the fourteenth day, at which time the Fever and the other Symptoms of the Disease would be abated. There are some who have attempted it while the Carbuncles remain purulent, and before the Bubo is perfectly cured.

But I dare not advise any one to follow that Method, whatsoever Remedies they administer at the

the same time, which may be intended specifically against the Plague.

But if it happen that the Patient for several days be very costive, and troubled with a pain at his heart, and hopes to be relieved by *Purgation.*

It is to be considered, that the Venom of the Disease, and not the Costiveness is the cause of the pain at the Heart; it is therefore most requisite to make use of *Sudorificks*, to corroborate the Heart, and not to concern your self for the costiveness of the Body; but if you desire to open it a little, it is better to make use of a *Suppository* than a *Glyster*, which is not altogether so safe, but hath been prejudicial to many on this occasion: and to others it hath done but little good, and not at all opposed the Malignity of the Disease: But to such as will not take this advice, which hath been very confirmed by experience & several good Reasons, and will still persist to make use of *Glysters*, it is fit however that they forbear to prescribe *Scammony* as an Ingredient, especially to Women in the time of their Flowers.

Juleps are in this case very necessary; but all persons may not make use of them, nor any at all times. I am never wont to prescribe them without joyning with them some *Sudorificks* (which will appear hereafter) and this I take to be the safest course; for if the sick person should make use of such things only as refrigerate whilst he sweats freely, the Sweat would oftentimes strike inward, and the Venom would be conveyed to the Heart, from whence would follow sudden Death.

There is no means more requisite than that of *Diaphoreticks* and *Cordials*, especially those that are acid, which produce such effects as are certain, and therefore the more laudable; for they rectifie the Mass of Blood, and free it from the venom which infects it. They dissolve the pituitous Matter which is lodged in the Stomach and the Entrails, and correct the Choler, which in this Disease is the cause of much mischief. Nevertheless the several disguises of this Disease, and the vanity of the Symptoms which attend it, do require that they should be often changed, since when the Disease is more gentle, those things are not to be used, which would do good service in an acute one.

Medicaments against the Plague.

Roots of Zedoary, Butter-Bur, Angelica, Ditamny, Galangal, Vipers-grass, Gentian, Masterwort, Lovage, Burnet, Orrise Florentine, and ours, China, Sarsaparilla.

Leaves of Rue, *Scordium*, Sage, Holy-Thistle, Swallow wort, Wormwood, Southernwood, Centaury the lesser, Valerian, Sorrel, Fluellin, Balm, Marjoram, Rosemary, Thyme, Mint.

Flowers of Borage, Bugloss, Violets, Roses, Marigolds, St. *Johns worts*, Rosemary, Indian-Spikenard, Jesamy.

Seeds of Citrons, Oranges, Rue, St. *Johns wort* Anise, Coriander, Lovage.

Fruits, Citrons, Oranges, Walnuts, Figs, sharp Cherries, Pippins, Ribes, sowre Pomegranates, Barberries.

Spices, Musk, Ambergreece, Civet, Benjamin, *Storax*

Succ. Calamita, Cinnamon, Mace, Nutmegs, Cardamums, Camphire.

Animals, or *their parts*, Flesh of Vipers, Mummy, Serpents, Quails, Thrushes, Harts-horn, Unicorns-horn, Bezoar, Stone of an Indian Hog, Ivory, Castor.

Precious Stones and *Earths*, the Jacinth, Granate, Emerald, Ruby, Carbuncle, Pearls, Coral, Bolearmenick, Earth of *Lemnos*, and Seal'd, Gold, Silver.

Salts, Common, brought lately from the River *Nile*, which moveth Sweat most powerfully; of *Scordium*, of Wormwood, Rue, Self-heal, Holy-Thistle, Vitriolated Tartar, *Bezoarticum Minerale*.

Threacle of *Andromachus's*, Diatesseron, Mithridate of *Damocratis*, *Diascordium* of *Fracastorius*, Confection of Alkermes, of Hyacinth.

Species Diarrhodon.

Electuaries, of the Egg, Rob. of Currans, of Barberries.

Conserves of Balm, Mint, Rosemary-Flowers, Borage, Bugloss, Marigold-Flowers.

Troches, of the Juice of Barberries, of Citrons.

Out of all which, you may make choice of such as you judge most fit for the purpose.

The Writings of Authors, who have treated of this Disease, will give you an account of other Compounds, out of which you may chuse such as please you best.

I shall here propound such only as I have found to be most efficacious, and which I shall constantly make use of, till by experience I shall discover some

others, whose nature is more excellent; and that the use of them may the more plainly appear, I shall premise some Medicaments that some years since were prescribed by my self, and those Learned Men, Dr. *Francis Sylvius*, and Dr. *Francis Vanderschagen*, wherewith we thought it necessary to oppose that pernicious Enemy with which we were so to contend.

Our Prophylactick Water.

Take Roots of Angelica, Zedoary, of each an ounce; Roots of Butter-Bur, two ounces; Leaves of Rhue, four ounces; Leaves of Balm, Scabious, Marigold-Flowers, of each two ounces; unripe Walnuts sliced, two pound; fresh Citrons sliced, a pound: let them be all bruised together, then poure upon them six quarts of the best Wine-Vinegar distilled by it self in a Glass *Cucurbit* in Sand.

Let them digest a night, then distil them with a gentle fire of Embers to driness, but without burning, and preserve this Vinegar for your use.

If you desire an *Extract* or *Salt*, poure some of the distilled Liquor upon the *Caput Mortuum*, or to the remainder, and let it digest for three dayes, till it hath drawn out a Tincture, which filtre, and distil the filtred Liquor in *Balneum Mariæ*, to the consistence of an Extract: After the Extract, calcine the *Caput Mortuum*, and draw forth the Salt.

Our

Our Prophilactick Conſerve.

Take freſh Citrons, two pounds; the Juice hard preſt out, the outward Coats ſeparated from the inward Pulp, and bruiſed very ſmall; adding Conſerve of White Roſes, half a pound; of Red-Roſes, of Borage-Flowers, of each half a pound; preſerved Orange-peels, 4 ounces: Make it into a Conſerve.

Our Alexipharmick Powder.

Take Roots of *Contrayerva*, half an ounce; Peſtilent-wort, Tormentil, Elicampane, of each two drams; Sealed Earth, Bole-armenick, of each three drams; Shavings of Harts Horn, Ivory, of each a dram; Red Coral prepared, four ſcruples; Biting Cinamon, two drams; Diaphoretick Antimony, half an ounce: Make it into a Powder.

I have made uſe of theſe three foregoing Medicines with very great ſucceſs, as have alſo thoſe Famous Phyſitians before-mentioned, when they have applied them to ſeveral that have been viſited with the Plague. When I have given them for a Preſervative againſt the Plague, I ſeldom mixed any other with them; but for the Cure of it, I never made uſe of them ſingle, but have alwayes given them with theſe, or ſome ſuch like, *viz.*

Take Diaſcordium of Fracaſtorine, four ſcruples; *Sal Prunella*, a ſcruple; Salt of Wormwood, half a ſcruple; our Prophylactick Water, Holy-Thiſtle-water, Syrup of Barberries, of each an ounce: Mix them for a draught.

Or,

Or,

Take our Alexipharmick Powder, a scruple; Vitriolated Tartar, eight grains; Salt of Coral, fifteen grains; Confection of Alkermes, half a dram; our Prophylactick Water, an ounce and half; Rue-Water, as much as sufficeth, Syrup of Holy-Thistle, an ounce, Mix it for a draught.

Or,

Take Antimony Diaphoretick, a scruple; Salt of *Scordium*, of Rue, of each half a scruple; our Prophylactick Water, an ounce; Fumitory-Water, as much as is sufficient; Julep of Roses, an ounce: Mix it for a draught.

Take Confection of Hyacynth, *Diascordium*, Threacle, of each two scruples; our Prophylactick Extract, fifteen grains; Spirit of Salt, half a scruple: Mix it into a Bole.

Take our Prophylactick Conserve, a dram and half; Prepared Crabs-Eyes, a scruple; our Prophylactick-Water, half an ounce; Syrup of Limons, an ounce; Elder-Vinegar, half an ounce: Mix it for a draught.

Take Bezoartick Minera, fifteen grains; *Sal Prunella*, a scruple; Lozenges of Sugar pearl'd, half a dram: Make it into a Powder.

Let the sick person take some of these Medicaments for the provoking of Sweat plentifully; to which purpose, let him take Mutton or Chicken-broth an hour or two after he hath taken his Medicament; let the Sweat be gently wiped off with a warm Cloth, and another applied to his Breast: For we have found it not safe to change the Shifts, and other Linnen about the Patient, unless they are too much moistened by sweat. We

We may ſafely adminiſter theſe, or the like *Sudorificks* twice in a day to the Patient, or thrice in 24 hours, and that very much to his benefit.

There are ſome, who every ſix hours have very advantageouſly made uſe of a new *Sudorifick*. Nor are you eaſily to be perſwaded to ceaſe from the uſe of theſe means, although the Patient ſhould tell you that he is well in health, leſt you find the treacherous Diſeaſe of a ſudden to ſurprize you both again.

For young Children (who do uſually abhor the taking of Phyſick) I have found nothing better than the following Powder, given them in their ordinary Drink two or three times, in the ſpace of 24 hours; the Sugar may be omitted, if the Patient diſguſts ſweet things.

Take Diaphoretick Antimony, 15 grains; Lozenges of Sugar pearl'd, a ſcruple and half: Make it into a Powder.

Or,

Take Crabs-Eyes prepared, Shavings of Ivory, Bezoartick Mineral, of each ſix grains: Make it into a Powder.

We will treat of Juleps when we come to diſcourſe of the Cure of the Plague.

The Symptomes of the Plague.

THey are many, and very various, but moſt of them are accompanied with ſome others; which when the former are cured, the latter are very eaſily removed. We therefore think it very needleſs to give an account of them all in this place, it will be ſufficient to inſtance in the chief of them, amongſt which, we in the firſt place encounter with

A Fever: Of ſuch a Nature, that it admits not of any purging, or letting of Blood, which the Experience of ſeveral hath ſufficiently confirmed.

The *Sudorificks* before preſcribed are no leſs uſeful for this Symptom, than for the Plague it ſelf; but the *Fever* and great drineſs of the Tongue, requiring ſuch things as refrigerate, they are not to be adminiſtred, except they are mixed with *Sudorificks*, as we have ſhewn before.

Take Water of Borage, Sorrel, of each two ounces; our Prophylactick Water, an ounce and an half; Juice of ſowre Oranges, freſh Citrons, of each two drams; Julep of Roſes, as much as will make it conveniently ſweet; Oriental Bezoar, fifteen grains: Mix them.

Let the Patient often take the quantity of a ſpoonful hereof at once, whereby his thirſt will be much better allayed, then if he ſhould drink ten times the quantity of Beer, and that without any check or hinderance to the Sweat.

Or,

Or,

Take Holy-Thiſtle-water, a pint; our Prophylactick Water, two ounces; Syrup of ſowre Pomgranates, two ounces and an half: Mix them.

Or,

Take Scorzonera-Roots, Butter-Bur-Robts, of each an ounce; Sorrel-Leaves, two handfuls: Boil them in Barley-water, and to a pint of the Liquor, add Syrup of Violets, two ounces; *Sal Prunella*, two ſcruples; or Spirit of Salt, as much as is ſufficient: Mix them.

For the Rich, ſuch like Juleps as theſe may be prepared, which are both pleaſant to the Palate, and very Cordial.

Take Borage-water, three ounces; Holy-Thiſtle-water, a pint; Roſe-water, an ounce; Lozenges of Sugar pearl'd, an ounce; Ambergreece, two grains; Musk, a grain; Juice of Citrons, as much as ſufficeth: Mingle them.

Weſop-Ale, or ſome ſuch like, which is well boyl'd, may here be very uſeful, eſpecially if ſome Nutmeg ſcrap'd, or a piece of calcin'd Harts-horn be tied up and ſteeped in it. Nor need we fear any miſchief from exceeding either in the quantity or the frequent repeating of it; but we muſt take heed that it be not given cold, leſt Gripings, Flux, and a pain at the Heart, and ſuch like Maladies ſhould be cauſed thereby,

To ſuch who have weak ſtomachs, and a pain at their Heart, I do uſe to give the liberty, when their *Fever* abates, to drink *Moſel*, or *Rhenish-Wine* with

with Sugar, and the juice of *Limons*, provided that they take it in a moderate quantity: But I believe they do err very much, who prescribe to their Patients, whilst the *Fever* continues still very high, some sort of *French Wine*, either alone by it self, or mixt with their *Sudorificks*.

That Oriental Stone, call'd *Lapis Porcinus*, or *Pedro Porco*, is of very great use, if it be steeped for a while in your ordinary Drink; for it strongly provokes Sweat, and very much refresheth the Heart.

This Stone, if I mistake not, is generated in the *Gall* of an Hog, for it is exceeding bitter; and though it be very hard, yet every time it is infused, it abates somewhat of its quantity, which is discoverable by the Tincture which it imparts to the Liquor. Nor is the Gall of a man sometimes void of such Stones, which are like unto those taken out of an Hog, in savour, hardness and Colour; and we might find them too perhaps in their efficacy likewise, if we thought fit to make trial of them.

This *Fever* is often accompanied with *Drowsiness*, which forbids the use of the principal *Sudorificks*, such as *Treacle*, *Mithridate*, *Diascordium*, *&c.* because there is *Opium* in their composition, which makes them not to effectual for the preventing of sleep. It is more requisite to use this following, which is agreeable for dispelling the Vapors which infect the Head, and the heat about the Heart.

Take Salt of Rue, of *Scordium*, *Prunella*, of each half a scruple; Vitriolated Tartar, 8 grains, our Prophylactick Water, an ounce; Balm-water, as much as sufficeth; Syrup of Betony, an ounce: Mix them for a draught.

Let

Let Sweat be thereby provoked, and let it be the Care of the Attendants, that after the first or second day, the Patient may be kept from sleep, if it be found that he hath strength to bear it.

There is sometimes joyned with the *Fever*, *continual Watchings, and a great pain of the Head.*

I do not use to be much concerned for the watchings, although it should continue for the first three dayes without intermission, for it often falls out, that by the use of *Sudorificks* only, the pain is the first day abated, on the second becomes tolerable, and on the third is quite taken away.

Opium hath in it the virtue of causing Sweat, and is a great Ingredient in *Treacle*, *Diascordium*, and *Mithridate*, which without it, would not in my judgment have that *Sudorifick* quality, for which they are now noted. It is also reckoned by several Authors amongst those Medicines which are famous for dispelling of Poyson, whose use is very requisite in all malignant *Fevers*; nor do I believe that there can any other Medicine be named which gives so present relief to the Patient as *Opium*; concerning the operation whereof, they are able to give a better account, who have been frequent and curious in the use of it. I have sometimes in this case (though contrary to Custom) given it sparingly, when I have found the sick person not to sleep in the first, second or third days: But when he hath waked for six or seven dayes together, and found a great decay of strength, this following Prescription, taken every quarter of an hour by a spoonful, till sleep hath seized on him, hath afforded great relief, and the sleep produced thereby, hath been undisturbed, and of long continuance.

Take

Take our Prophylactick-water, an ounce and half; Borage-water, an ounce; Cinamon-water, three drams; Confection of Hyacinth, a dram; Lozenges of Sugar pearl'd, three drams; *Laudanum Opiat*, two grains: Mix them.

You may safely make use of *Opium*, after the manner before mentioned, but in Cachectick and infirm Bodies, whosoever gives it too boldly, or is fearful of prescribing it at all, discovers that he understands not its Virtue and Efficacy.

Before I come to the use of *Opiat Laudanum*, I endeavour to ease the pain of the Head by these following, *viz.* By applying Ground-Ivy bruised to the Nape of the Neck, and to the soles of the Feet and palms of the Hands, this, or some such like Composition.

Take Leaves of Rue, a handful and half; sowre Leaven, two ounces; Pigeons dung, an ounce; Common Salt, half an ounce; Elder-Vinegar, as much as sufficeth to make it into a Poultice, to be applied to the soles of the Feet, and palms of the Hands.

Or,

Take Bolearmenick, Seal'd Earth, Common white Chalk, of each half an ounce; Vinegar of Marigolds, as much as sufficeth: Apply it as before.

To the Forehead I have often applied the Powder of Cloves, moistened with the Spirit of Wine; for I take Vinegar to be hurtful, as are also all Emulsions.

Vomiting and the Hiccough is another Symptom of the Plague. It hath been observed by several who have been so curious as to open Bodies which have

have died of the Plague, that *Carbuncles* have often appear'd in the Stomach, and amongſt the Entrails, whoſe teſtimony is not to be rejected, ſince it is ſo agreeable both to Reaſon and Experience.

Theſe (if they are not the Cauſe of the Vomiting and Hiccough, may be eaſily removed by a ſpoonful of this following Preparation, taken cold every quarter of an hour.

Take Mint-water, our Prophylactick-water, of each an ounce and half; Cinamon-water, half an ounce; Confection of Hyacinth, a dram; Salt of Coral, a ſcruple; Syrup of Myrtles, half an ounce; Roſe-Julep, half an ounce: Mix them.

By the uſe hereof, the Vomiting is uſually ſtay'd, eſpecially if the Stomach be ſometimes annointed with this following Oyl.

Take Oyl of Nutmegs by Expreſſion, a dram and half; Oyl of diſtill'd Mace, half a dram; Oyl of Wormwood, a dram: Mix them.

In the mean while, let the ſick perſon forbear to drink too plentifully, and as ſoon as the Vomit is ſtayed, let him make uſe of ſome good Sudorifick.

Another Symptom of the Plague is a *great Flux* which is uſually a ſign that Death approacheth; but when the ſick perſon hath not voided meer blood, nor any thing of a bloody ſubſtance, I have ſometimes found theſe following Preſcriptions to be ſucceſsful.

Let him abſtain from all things that are either acid or ſalt; which, except in this caſe, are of great uſe in the Plague; and likewiſe from drinking much: But if his thirſt be ſo exceeding great, that he cannot bear it, let him take one, two or three ſpoonfuls of this following Mixture.

Take Tormentil-Roots, an ounce; Red Roſes, a handful; Shavings of Harts-horn, a dram; Seeds of Sorrel and Mirtle, of each a dram: Boil them in Smiths water, and to nine ounces of the Liquor, add of the Confection of Hyacinth, a dram; Syrup of Mirtles, an ounce. Mix them.

Many have alſo from Treacle alone received great benefit by ſwallowing a little of it every four hours, till they have taken the quantity of a dram; as likewiſe from this following, taken by ſpoonfuls.

Take *Fracaſtorius* his *Diaſcordium*, two drams; Amber, half a ſcruple; red Coral prepared, Dragons blood, of each a ſcruple; prepared Pearls, half a ſcruple; Fennel-water, an ounce; Plantane and Roſe-water, of each an ounce and half; Syrup of Comfrey of *Fernelius*, an ounce: Mix them.

Clyſters of an aſtringent, drying and emollient quality, given twice or thrice in a day, have likewiſe in this caſe been found very neceſſary.

Take Roots of Comfrey the greater, an ounce; Biſtort and Tormentil Roots, of each three drams; Oak-leaves, half a handful; Flowers of Balauſtians, Red Roſes, of each a pugil; Aniſeeds, three drams: Boil them in Cows Milk that hath been burnt to into 8 ounces of Liquor, diſſolve of Venice Turpentine, two drams; one Yolk of an Egg, white Troches of *Rhaſis*, a dram; Honey of Mercury, half an ounce; of Roſes, an ounce: Make a Clyſter.

The Bathing of the Belly with the Lees of white or rather of red Wine, and the applying to it afterward a warm cloth three or four times doubled,

have

have by ſome been found to be of ſingular benefit, or elſe the Ointment and Plaiſter following may be made uſe of.

Take Oyl of Maſtick, of expreſt Nutmegs, of each a dram; Oyl of Dill, Wormwood, Myrtles, of each two drams; old Treacle, three drams: Mix them.

Take Bolearmenick, Frankincenſe, Maſtick, Dragons-blood, of each two drams; Mummy, three drams; Powder of Galls, a dram and half; Seeds of Carots, Lovage, Aniſe, Myrtles, of each a ſcruple; Oyl of Nutmegs, by expreſſion, three drams; Venice-Turpentine, as much as ſufficeth to make it into a Plaiſter.

And thus much may ſuffice to have been ſpoken concerning the inward Symptoms of the Plague; the outward are three, the *Spots*, call'd *Petechiæ*, the *Bubo*, and the *Carbuncle*.

The *Spots* can hardly any other way be better removed than by inward Remedies, but they do uſually portend ſome miſchief.

The *Bubo*, I am wont to deal with after this manner following. At the firſt appearance of it, and although the ſwelling hath arrived to no conſiderable height, I draw a Bliſter, without making uſe of Cupping-glaſſes, which by reaſon that they cauſe a great deal of pain, and create a Fever, and draw unto them both the good and bad Humors, and cauſe a greater alteration than was before in the Blood, I do utterly lay aſide: After ſeven or eight houts, cutting the Bliſter, I apply unto that Part a Magnetick Plaiſter of Arſenick; the virtue whereof is ſo great, that I know not any more excellent; which will appear to whomſoever ſhall

make use of it; the account of it out of *Hartman* and *Agricola*, is as followeth.

The Magnetick Arsenical Plaister.

Take Crude Antimony, yellow Brimstone, white Arsenick, of each two ounces.

When you have beat them very small, let them be put into a Viol covered in Sand, to which you must apply fire till they are all melted, and appear to be of a dark red colour; when it is cool, it may be taken out of the Vessel, and this is that which they call the *Arsenical Magnet*, and hath not in it any thing of poyson, as it may be easily experimented upon Dogs afterwards.

Take *Gum Sagapenum*, *Ammoniacum*, *Galbanum*, of the Arsenical Magnet, of each three drams; Turpentine of the Larch-Tree, Wax, of each half an ounce; Oyl of Amber, two drams; Dulcified Earth of Vitriol, a dram.

Let the Gums be dissolved in the strongest Wine-Vinegar, and strained through a Linnen Cloth, let them after that be boiled up to their former consistence, then melt the Wax and the Turpentine together by themselves, and when you have taken them off from the fire, stir them well till you have brought them to the consistence of an Ointment; then add to them the Gums before-mentioned, and the Arsenical Magnet, together with the Earth of Vitriol, and Oyl of Amber, and you will have that plaister which is most effectual for drawing forth all sorts of Poyson.

I have found the Virtue of this Plaister to be such, that if it be applied to those parts where the Skin

Skin is somewhat hard, it leaves not the least sign of a Scar, and yet doth so plentifully draw forth the malignant Humor, that a *Bubo* of the bigness of a Walnut, will in the space of five or six dayes be utterly taken away, but because it doth not alwayes so suddenly produce this Effect, it is often very necessary to raise a Blister for evacuation of the Humors. And it is observable, that in some strong Bodies it causeth no Escar at all, unless when the Blister hath corroded, not only the outward, but also the inward Skin. But in Children, and more tender Bodies, it will of it self cause an Escar, although there be no Blister drawn before the application of it.

This Escar or Crust is the true Seat of the Venom, which is extracted, and is of that thickness (especially considering that the Skin is but superficially corroded) that it is well worth our while to consider it. For I do believe that to be the reason why it is much sooner separated than other Crusts or Scars that are caused by Art; for in the space of 24 or 36 hours, if no Scarification hath preceded, it may be easily taken off without any, or at least with a very small pain, if you make use of any Antipestilential Plaister, and add unto it some Treacle, or *Unguentum Basilicum*, or else the severing of the Escar may be very much promoted by this Ointment.

Take Virgins-Honey, Ducks-grease, of each an ounce; Soot, six drams; Turpentine, an ounce; Yolks of two Eggs, Treacle, three drams; Oyl of Scorpions, as much as sufficeth to make it into an Ointment.

But if the Tumor is not sufficiently abated when the first Crust is taken off by the Arsenical

Magnetick Plaister, it is requisite that you create a second or third, and then proceed as before.

The Ulcer may be consolidated by a Plaister of *Minium*, of White Lead, *Diapompholigos*, or some such Remedy which drieth up the Humor, and bringeth the Ulcer to a Cicatrice: But we must observe this by the way, that this Consolidation is not to be wrought too suddenly, lest part of the poysonous Humor which still remains in the Body, should cause some new Disease, which may be fatal to the Patient.

For want of the Magnetick Plaister, you may make use of this following, if you take care first to raise a Blister, the virtue whereof hath been found to be very great by several, for the taking away of painful *Scrophula's*, and the excellent qualities that are in it, have made it famous by the name of

The Divine Plaister.

Take Gum *Galbanum*, an ounce; *Ammoniacum*, two drams, Oppoponax, three drams; yellow Wax, twenty ounces, Oyl of Olives, 24 ounces; Litharge of Gold, 17 ounces; *Olibanum*, two ounces: Mirrhe, Frankincense, of each ten drams; Verdigreece, long Birthwort, Mastick, of each an ounce; *Bdellium*, Loadstone, of each two ounces: Make it according to Art into a Plaister.

If the *Bubo* is too protuberant, or cleaves to the Tendon, a Vesicatory is too weak; but an actual Cautery is not so necessary: it will be therefore best to make use of a potential one, and among those several wherewith I have been acquainted, I know not any one that is more corrosive, and yet causeth less pain than this following,

Take

Take unslaked Lime, drachm 1 ; of black Sope as much as sufficeth: Mix them.

There are few which are not acquainted with such things as are useful for drawing of Blisters; among the rest, this Prescription following is to be commended.

Take, sowre Leaven, half an ounce; *Euphorbium*, Seeds of Staves-acre, of Mustard, Roots of Pellitory of Spain, of each a scruple and half; *Cantharides*, a dram and half; Strongest Wine-Vinegar, to make for a Blistering Paste.

If the pain be great, the following Poultice may be made use of, unless necessity require that the Chirurgeon should make use of a Cautery.

Take Leaves of *Scordium*, Rue, Hemlock, of each a handful; Camomile and Dill-flowers, of each a pugil; tops of Wormwood, two handfuls; Crums of Bread, two ounces; boil them in milk; adding to it of Eastern Saffron, half a dram; Yolks of two Eggs; Treacle, three drams: Make it into a Cataplasm.

The suppuration of a *Bubo* is very rare, the means necessary for it, are such as Chirurgeons are very well acquainted with, and are not, if Nature inclines to it, to be neglected. The *abscesse* in this case is to be opened, first by a Launcet, and not by the application of any Caustick; but the Ulcer that proceeds from hence, is very slowly healed.

None but such as are unskilful, make use of the Plaister of, Frogs and Mercury; for it driveth the Venom inward, and threatneth much danger to the sick person; wherein we are confirmed both by the Writings of Ancient Authors, and by our own experience.

The Carbuncle.

Called by the Greeks *Anthrax* (for it is to no purpose to insert any nice distinction between them) shews it self in several shapes, but the Symptoms of it are many times very fallible: It is easie to conclude of it when ever it discovers it self by a little Push of a dark purple Colour, with an Inflammation round about it; but often appears with a white Push without any considerable prominency, which seems to contain a sort of purulent Matter that portends no mischief; but if you squeeze it, you will find it dry and very hard, and it eats very deep into the Skin underneath it.

Sometimes there appears one single Bladder filled with Limpid Matter, which if it be not opened in the space of 24 hours, it grows black, and upon its dissection sends forth two or three drops of black Blood.

Otherwhiles, several little white Blisters discover themselves. If these grow hard underneath, and are accompanied with a Fever and Inflammation, there is no question but that they are Malignant; and I know not why they may not be reckoned in the number of Carbuncles, especially since they are wont to dispatch a man in as short a time as the purple ones; and they are to be dealt with after the same manner, if we expect that our endeavours should succeed.

To the Cure of it, it is requisite that the Suppuration should with all diligence be promoted, and thereby the danger prevented of the Infection dif-

diſperſing it ſelf. And for this purpoſe I have found nothing more effectual than an actual Cautery; which hath alſo been approved of by ſeveral Chirurgeons; but there are ſome who apprehending it to be too cruel a Remedy, do upon that account reject it, and chooſe rather a Potential Cauſtick, or ſome Medicines whereby Bliſters may be raiſed: Both which I my ſelf likewiſe have made uſe of, when it hath not been allowed that we ſhould uſe other means, and when I have hoped that theſe might be ſufficiently efficacious. For a Phyſitian is often conſtrained to comply with the Humor of ſuch as are converſant about the ſick Perſon, and will pretend to know much, although it be many times to the prejudice of his Patient.

They that approve not of any of the forementioned Remedies, may make uſe of the Magnetical Arſenick Plaiſter, which in this caſe we have found to be of great virtue.

For the ſeparation of the Scar, thoſe means which we mentioned in treating of the *Bubo*, are very neceſſary: Many have very much commended this following Poultice.

Take Roots of Comfrey the greater dried, two drams; Marſhmallow Roots dried, half an ounce; Leaves of *Scordium* dried, two drams; Meal of Linſeed and Wheat, of each half an ounce; make them into fine Powder, poure upon them clean water as much as is ſufficient; let them boil a little, that the Mucilages may be diſſolved, and till it comes to the conſiſtence of a thick Poultice; then add of Honey, Turpentine, and *Ung. Apoſtolorum*, of each three drams; *Baſilicon*, Tar, of each two drams; the Yolk of an Egg; Eaſtern Saffron, a ſcruple:

scruple: Mix, and if you please, you may add two drams of Treacle.

Preservatives against the PLAGUE.

IT is the Doctrine of the Devil to teach that the use of all Means is to be neglected; who once spake to our Saviour, and endeavoured to perswade him to cast himself headlong from the top of the Temple, because they need no other security, whom God supporteth by his Mighty Hand: but he that hath given us Life and Health, requires that we should make use of some helps for the conservation of both; and therefore if you take my advice, I would wish you to observe these Rules following.

Amongst which, in the first place is challenged, and that deservedly, fervent *Prayer*.

Flight is very allowable to Christians, if it be consistent with their quality and condition of Life; but let those that make use of this, not depend too much upon it, but remember that it is not possible to fly beyond the reach of the Omnipotent.

And to take these Directions with them, *viz.* That they *fly early, go far off, and be slack in their return.*

When we go out into the Air, either by day or

at night, we ought to take special care that it be clear and free from Vapours.

To which intent it hath been in such cases very useful, and found exceeding advantageous to keep good fires both in publick and private, since the Air is by nothing sooner nor more effectually purified.

It is also very necessary that the Houses be daily washed, which if it be done with Vinegar instead of Water, it is much better.

Things of a strong Odour, such as *Amber*, *Musk*, *Civet*, *Benjamin*, &c. do not only correct the Malignity, but attract the Venom to them, and have been found hurtful by experience, and are therefore consequently to be concluded so by reason.

It is useless and ridiculous to annoint the Nostrils with *Treacle* and *Mithridate*.

Those things which do really purifie the Air, are *Amber*, *Pitch*, *Mirrhe*, *Frankincense*, the *Wood* and the *Berries of Juniper*, *Sulphur*, *Assa Fœtida*, *Horn* (but especially *Gunpowder*) being either kindled, or put upon a few lighted Coals.

Such as take Tobacco, do very much commend the virtue of that Plant; I do not disapprove the use of it, though as much as I can, I avoid the Smoak.

An inordinate Diet is very hurtful at all seasons, but especially in a Pestilential one. There can be nothing prescribed in general which may agree with each man in particular; there is very much to be allowed to Custom, but we must at all times industriously avoid all Meats that are difficult to be concocted, and take great care that the Stomach be not overcharged.

For

For our Diet (*if we can so contrive it*) we ought to make choice of Veal, Mutton, Beef, Pullets, Capons, Peacocks, Larks, Chaffinches, Quails, Hares, Conies, *&c.* Perch, Pike, Whiting, Sole, Salmon, *&c.* Eggs, Butter, Green and Parma-Cheese, Buttermilk; Cichory, Endive, Sorrel, Lettuce, Chervil, Parsley, Rosemary, Sharp-Apples, Quinces, Limons, Oranges, Capers, *&c.*

On the other side, Flesh and Fish which hath been dried and salted, are very hurtful; as Bacon, and Pork, Haddocks, Eels, Crabs, Shrimps, Green Fruit, and all things that are hard of Digestion.

Walnuts are very much commended, and not without good reason; for there may be very much use made of them: The green ones preserved, do much good to those that abound with Choler; but such as are come to their full ripeness, whether you take them fresh gathered, or when they are more dried, all that make use of them, will tell you that they are very pernicious.

The strongest Beer, and Wine of a middle strength, are very useful at such times, if moderately taken; but we cannot allow that any, except such as are very ancient, should dayly make use of strong and sweet Wines, nor of Spirit of Wine and Brandy.

Go not forth into the Air with an empty Stomach, but always take some Preservative against Infection.

Take our Prophylactick Water, six ounces; Julep of Roses, three ounces: Mix them; take the quantity of a spoonful or two each morning.

Or,

Take our Prophylactick Conserve, three ounces; take

take the quantity of a Cheſtnut in the morning, or as often as you are to go to an infected place.

Vinegar, and all ſharp things have been commended to us by long experience; but they will not well agree with ſuch as are troubled with a Cough, weakneſs of Stomach, or the Cholick, if they are taken either alone, or in too great a quantity.

I never had any great eſteem for outward means, but thoſe that can fancy it, many wear about their Neck this Amulet.

Take Arſenical Magnet, a dram; Benzoes, as much as is ſufficient; make them into great rowls, and ſew them up in red Lawn.

We have before deſcribed the Arſenical Magnet when we treated of the Bubo.

Sleep and Watching, exerciſe of the Body, and the uſe of Women, if immoderate, are very hurtful.

Coſtiveneſs is prejudicial, but not ſo much as a great looſneſs.

Sadneſs, Fear and Anger will make very ſtrange alterations in the Blood; he who knows how to moderate thoſe Paſſions, is moſt prudent.

Practical

Practical Observations.

I.

A Young Man aged twenty two years, being lately returned from the *East-Indies*, on the 21 of *July*, 1655. in the Evening was suddenly taken with a great pain in his Head, and a shivering through his whole Body, having that day received much injury from the Water and Air; the day following he became exceedingly delirous, so that he could not by four men be kept in his Bed.

The *Plague* at that time raged very much in the next Town, which was very populous: but there had as yet appeared no Symptoms of it in this of ours: We met with no outward signs of any Malignity, nor did those within appear so considerable, as to forbid the breathing of a Vein, which the *Delirium* did very much press us upon: I therefore prescribed a Cordial Mixture, which might also be *Sudorifick*; whereof 2 spoonfuls was to be taken each quarter of an hour, and after the space of one hour a Vein to be opened in the right Arm, and seven ounces of Blood to be taken from thence: I had more than once before made trial of this Mixture in a *Pleurisie*, which was accompanied with Spots: The Description of it is as followeth,

Take Waters of Borage, Holy-Thistle, Bawm, of

of each an ounce; Alexipharmick Water, an ounce and half; Cinamon-water, half an ounce; Confection of Alkermes without Amber-greece and Musk, a dram and half; Syrup of the juyce of Citrons, an ounce: Mix them.

The mixture was taken, and a Vein opened, and such things as we thought fitting applyed to the Temples, the Neck, and the Soals of the Feet, but all was not sufficient to overcome the Malignity of the Disease, for he dyed that night.

II.

A Man and his Wife on the 5*th* of *July*, were both taken with *Buboes* in their Groin; *She* was very drowsie, Feaverish, and Anxious, but by the use of *Sudorificks* and drawing Plaisters, she was by the 10*th* day following restored to perfect health. *He* was seized on by a pain in the Head, and a small *Delirium* which continued till the 5*th* day, on which he was taken with a great fit of Bleeding, which with some intermission continued for two days, this according to the opinion of all Practical Physicians was to be judged very dangerous. But when I considered that his strength was not at all hereby impaired, but on the otherside, the pain in the Head and the Feaver abated, nor did the *Bubo* strike inward; I cast away fear, and concluded that the Judgments of men by time and experience might be much corrected. I therefore thought it not the best course to continue here the use of *Sudorificks*, but rather to strengthen the Heart, and to incraffate the Blood, and thereby to stop the Flux of it. To which purpose I prescribed this which followeth, to be taken by a spoonful at a time.

Take

Take Water of Roſes and Plantane, of each four ounces; Cinamon-water, ſix drams; Dragons Blood, red Coral prepared, of each a ſcruple; Confection of Hyacinth, a dram; Spirit of Salt, eight drops; Syrup of Barberries, an ounce and half; Mix them.

Upon the taking of this, the *Bleeding* and the *Delirium* both ceaſed; and thereupon the Patient grew well, the *Bubo* continuing for ten weeks after.

III.

A Maid on the 4th of *September*, was taken with a *Fever*, a pain at the Heart, and in the Head, and with a *Bubo*, which broke out about the inward part of the bending of the left Arm, and ſeized on the Tendon of the Muſcle *Biceps*; from hence proceeded a very acute pain, not only in that part where the *Bubo* apppeared, but alſo about the Armpits by conſent of parts, although there was no ſwelling, which thereabouts appeared. I gave her this *Sudorifick* forthwith.

Take *Diaſcordium* of *Fracaſtorius*, four ſcruples; *Sal Prunella*, a ſcruple; Alexipharmick-water, an ounce and half; and Holy-Thiſtle-water, as much as is ſufficient; Syrup of Limons, half an ounce: Mix it for a draught.

To the *Bubo* I applied the *Divine Plaiſter*.

The Sweat came plentifully, but the pain of her Arm, a *Delirium*, and continual watchings, after the uſe of ſeveral other things, forced us to uſe this *Laudanum Opiat*.

Take Bawm-water, an ounce; Holy-Thiſtle-water, an ounce and half; Alexipharmick-water, an ounce; Confection of Hyacinth, a dram; Julep of Roſes, ten drams; *Laudanum Opiat*, two grains: Mix them.

Of

Of this she took every half hour one or two spoonfuls; and although it caused Sweat, yet it procured no Sleep. The Chirurgeon for variety, made use of his *Pestilential Plaister*; but neither was the pain hereby remitted: we were therefore forced at length to apply this following to break it.

Take of unslack'd Lime, of Black-Sope, as much as sufficeth.

By the help whereof the *Fever* very much abated, though the pain continued as before; but yet in the space of ten or twelve dayes it utterly left her; but the *Bubo* remained open for six weeks after, for the whole Glandule was consumed by the Ulcer, and some part of it which was corrupted, was necessarily to be separated from the other. In the mean while, we had great cause to fear that the putrefaction had pierced deeper, because the Ulcer was deep, and the sides of it callous, and a ferous matter came from it; but by the blessing of God the Cure succeeded according to our wish.

IV.

A Bookseller in *May* was very much troubled with two Biles, whereof one broke out on his Buttock, the other on the *Scrotum*. To remove the Cause hereof, and to abate the Tumor, I prescribed this following Laxative Apozem to be taken two or three dayes together.

Take Tamarinds, an ounce; Cream of Tartar, two drams; Senna, six drams; Rhubarb, two drams and an half; Aniseeds, a dram and half; boil them in Whey, and to a pint of the strained Liquor, add two ounces of Syrup of Succory with Rhubarb: Make it into an Apozem.

To the Swelling I applied the Plaister *Diabotanon* with Gums, by the means whereof they were wholly removed.

The same person the 26th of *August* (at which time the Plague raged here very much) was taken with a *Bubo* in his Groin, which, when after inquisition made (that I might satisfie the curiosity of him and his Wife) I had declared to be Pestilential, it was strange to see what terrour seized upon them both, but I quickly caused them to chear up again, by letting them know that the Life was not at all in danger; for the Man in all other respects was very well, he eat, drank, and slept well, had no Fever, nor pain at his Heart; nevertheless I gave him Sudorificks more than once; and the Chirurgeon drew a Blister, and afterwards applied Plaisters and drawing Poultices, whereby in the space of four weeks the *Bubo* was wholly dissipated without any Suppuration.

V.

A young *Emdener* of twenty six years old, on the 12th of *August*, fell into a continual Fever, accompanied with drowsiness, trembling of the Lips, blackness and driness of the Tongue, all malignant signs; but I restored him again by the 30th of the same Month: to effect which, I prescribed him a Sudorifick, Morning and Evening, and for his ordinary Drink, this Julep.

Take Holy-Thistle-water, a pint; Alexipharmick-water, two ounces; Julep of Roses, 2 ounces and half; Spirit of Salt, eight drops: Mix them.

On the third day there was Spots discovered all over his Body, nor was his drowsiness or the trembling of his Lips abated, but he vomited not at all. I gave him this Sudorifick.

Take

Take Salt of *Scordium*, of Holy-Thiſtle, of each a ſcruple; Antimony Diaphoretick, half a ſcruple; Crabs-Eyes bruiſed, twelve grains; our Prophylactick water, Mint-water, and Syrup of the juyce of Holy-Thiſtle, of each an ounce: Mix it for a Draught.

By the uſe hereof the Fever abated very much, and on the eighth day I found that he had a Thruſh; for the ſeparation whereof, I preſcribed this Mixture to be taken by ſpoonfuls.

Take the juyce of the greater Houſleek, half an ounce; Water of Self-heal, of Purſlane, of each an ounce and half; the yolk of one Egg, Syrup of Violets compound, ſix drams: Mix them,

This being twice or thrice reiterated, and making uſe at the ſame time of a Lohoch of the Syrup of Purſlane and Violets, by means hereof the Thruſh was removed, and the Fever cured without either Purging or letting Blood.

VI.

I was ſent for on the 18th of *Auguſt* to a Woman great with child, which was taken with a great drowſineſs, and had a Peſtilential *Bubo* brake forth in her Groin, but ſhe had ſcarcely any Fever; her Eyes looked well, and her Tongue was moiſt, and ſhe ſeemed very heart-whole, ſhe had now gone ſeven months, & on the night following ſhe was delivered, which I concluded to be a certain ſign of Death, and found it true; for on the next day about ten of the Clock ſhe departed.

The Husband of this Woman fell ſick the ſame day, he was delirous, his Eyes ſparkled, his Tongue was dry, all which I noted for very ill

signs, his Fever was but small, but the pain at his heart very great, his Urine like that of men well in health. After having taken two Sudorificks, he began to come to himself, his Tongue was observed to be moist, and a *Bubo* appeared in his Groin, and a Carbuncle on his Back, which on the next day had three or four more joyned to it. Their Symptoms promised good success, but it happened otherwise; for as soon as he saw his Wife dead, he was so altered, that the *Bubo* striking inward, and the Sweat stopping, the third day after he died.

An old Woman related to him, had a Carbuncle without a Fever, and by our usual way of proceeding, was cured in nine dayes.

VII.

A Midwife which went trembling and unsteady, gave me occasion from thence to suspect some extraordinary weakness in her, or a *Delirium*; nor was I mistaken; for when I came to feel how languidly her Pulse beat, I found it evident; but yet I could discover no outward Symptom: nevertheless the dryness of the Tongue, the difficulty of Breathing, and such other signs did discover that some Malignity was concealed within; at length upon enquiry, she told us that she had a push upon her right Thigh, which, upon search, we found to be a Carbuncle of the breadth of a Shilling. She would not grant that she had any *Bubo* in her Groin (which nevertheless I doubted not of) nor suffer the Chirurgeon to search. He gave her what was requisite to be applied outwardly, and I prescribed her a Sudorifick, after two dayes she recovered her strength, and became

came of a right mind, and the third day seemed to be perfectly well; but on the Evening of that day all was changed, she became restless and almost distracted, and died that night.

She had taken before I was sent for, *Manna* with *Cream* of *Tartar*, and after that, *Tamarinds*, all which doing no good, but the Disease still encreasing upon her, she conjecturing that there was some Malignity in it, took an ounce of *Plague-Water*; which, though it were much weaker than the Malignity required, yet she took it for two dayes by my advice; but on the third (whatsoever I perswaded to the contrary) she changed all her Linnen, even to her Head-cloaths, and drank Whey in which *Tamarinds* had been boiled, from whence proceeded her sudden change for the worse, and upon that her Death; and these are the effects of self-conceitedness.

VIII.

Helena van Wyngaerden, a Servant of mine, on the first day had some slight Symptoms of the Disease, the next she was taken with Vomiting, a pain in the Head, and at her Heart, especially when she endeavoured to rise from her Bed, her Eyes look'd red, but her Tongue was well enough, and her Fever was but small; a few dayes before, without my knowledge, she had been at an house that was visited; I gave her presently a *Sudorifick*; whereupon, the third day after a *Bubo* appeared in the left Groin; I continued the use of *Sudorificks*, and the Chirurgeon took care of the *Bubo*, by which means, within a fortnight she perfectly recovered, and went again about her business.

IX.

IX.

The Daughter of *N. Domer*, on the second of *September*, complained of a great pain in her head, and at her Heart, and her Tongue grew black and dry. The first and second day we put her into a Sweat, and on the third, she told us that she was perfectly well; her Tongue became moist, her Pain, her Fever and Anxiety left her; nevertheless I perswaded her to continue the *Sudorificks*, but she arose and ate and drank, went abroad, and after that slept well all night; but, in the morning the former Symptoms returned, and in the evening of the same day there appeared Spots, and the next morning she died.

X.

N. N. had lain very ill for six dayes, at what time I was sent for to him on the twentieth of *August*, he began to be light-headed, his Tongue became black and dry, and he had a great anxiety at his Heart, his Eyes were fixed, his Hands trembled, and a great Carbuncle discovered it self on his Cheek, whose Tail reached to his very Chin, which was also hard and much swelled. It seem'd to threaten a much greater increase; for it was very dry, and much inflamed, and not circumscribed within any bounds. To this was added a pain in the Throat (which Symptom I conjectured to be mortal) and a very intense Fever. This desperate case put us in mind of desperate Remedies; wherefore being guided by my own Reason and Experience, and perswaded by the

the Authority of the moſt Eminent Phyſitians, both Ancient and Modern, I boldly recommended to him an actual Cautery, which was preſently applied by the Chirurgeon, without any great pain to the Patient: This Operation was perform'd in the Morning at ten of the Clock, and between four and five in the Afternoon it appear'd purulent, and the Cruſt began to be ſeparated, nor did the Core of it creep any further; all which Effects, I know not from what means they could have been expected beſides this. In the mean while he ſweat plentifully, and all things gave his Friends to hope that he would again recover; but I was of another mind, as knowing well the nature of this treacherous Diſeaſe. The ſame Evening he took another *Sudorifick*, and ſlept quietly enough all night. On the one and twentieth day the Cheek that was affected, diſcovered on it ſome moiſture, the Fever continued as it was: Between his fore-finger and his middle one there brake forth a very painful Carbuncle, which affected the whole Arm. To this there was applied another actual Cautery without any great alteration diſcerned in the Patient; then we preſcibed him a Julep which might cauſe Sweat, and ſome food that was nouriſhing, but no Sweat appear'd, and the affected places being drier than the reſt, fore-boded an ill event. At Nine in the Morning another Chirurgeon was ſent for, who approved of whatſoever we had done in this caſe; at midnight he fell into an high *Delirium*, ſo that he could not be held in his Bed by thoſe which attended; about morning he betook himſelf to reſt, and in one hour after departed: Some of his Friends accuſed me of being negligent,

which ingratitude I can the better bear, since I am conscious to my self, and give thanks to God for it, that I omitted nothing which the Rules of Art required to be done.

XI.

The Wife of *Cornelius Janson* being fifty years old, was after she had been sick two dayes, troubled with a *Bubo* in her Groin, and a great anxiety of Heart; but the Feaver was but small: Her Eyes (which I do much observe in all sick persons) look'd very well; as soon as she sweat, she began to confess her self better, her anxiety was presently removed, and her Fever also after few dayes: The *Bubo* (a Blister being first drawn) was dressed by a Chirurgeon with the *Magnetical Arsenick Plaister*: She fell sick on the eighteenth of *September*, and her Son on the twenty third, who was taken with a pain in his Head, and refusing all Medicines, died within three dayes, but she recovered.

XII.

Everard Tessalear, a Vintner, was taken on the 28th of *September*, with a chilness all over him, and then with a very great heat, his anxiety was great, and his breathing difficult, accompanied with nauseating, a pain in the Head, a trembling of the Hands, a burning of the Eyes, and an intolerable pain on the right side of the Groin, yet without an apparent swelling. I gave in my Opinion that he was taken with a Pestilential Fever, and prescribed some Remedies for that purpose; after the first Sudorifick, the pain in the

the Head and Groin abated, and the Vomiting was ſtopped; after the ſecond, the pain became tolerable; and by the fourth, it was wholly taken away, and the Feaver cured: Being ſo ſuddenly reſtored, he believed not that there was any Malignity in it, and went abroad forthwith; which I did very much diſallow, accuſing him of unthankfulneſs to God, and foretelling that he was to ſuffer ſomewhat more ſevere, becauſe I could eaſily perceive his Health and Strength not to be confirmed, and that there was need of a further courſe of Phyſick to ſettle it. He ſtill refuſed to hearken to me, till on the day following he was attaqued by the ſame Enemy, and his Wife alſo; he firſt complained of a pain in his Groin, and then of a *Bubo*, which Symptoms confirmed the truth of what I had foretold, and cauſed him to repent when it was too late: The fear of Death made him now deſirous of repeating the *Sudorificks*, by means whereof, through the Divine aſſiſtance, they were both cured in nine dayes, though the *Bubo* continued on the Woman for a Month after.

XIII.

Albert N. on the ſecond of *October*, was taken with a great pain at the Heart, his Pulſe was not to be diſcerned by a gentle touch, his Countenance was like one in an Agony, he was extream prone to Vomit and to Sleep; but he was pretty well in his Senſes, his Eyes were not inflamed, his Tongue moiſt, the Fever but ſmall, and the Thirſt not great: The Vomiting was preſently relieved by the uſe of thoſe things

things which we have mentioned in their proper place; but the Sweat came but slowly: whereupon I gave him the next day a more powerful *Sudorifick*, whereof we found very notable effects, but his thirst by that means being increased, made him drink a great quantity of Beer, whereby the vomiting returned, and because he complained of a pain in his Belly, we were afraid of a *Diarrhea*; wherefore instead of Beer, we gave him this following Mixture by Spoonfuls.

Take Rose-water, two ounces; Holy-Thistle-water, four ounces; Mint-water, an ounce; Cinamon-water, three drams; our Prophylactick-Water, an ounce and half; Syrup of Myrtles, two ounces: Mix them.

And in the Evening he took this *Sudorifick*.

Take Confection of Hyacinth, a scruple; Treacle, *Diascordium*, of each two scruples; Salt of Coral, fifteen grains; our Prophylactick-Water, ten drams: Mix it for a draught.

The night after passed quietly, the Vomiting ceased; the third day after there was a Carbuncle discovered on the inside of the left Nostril: We applied to it our Divine Plaister, and inwardly we gave *Sudorificks*, and such things as might refrigerate; on the fourth day his Nose was observed to be cold, and to look of a purple colour, the Carbuncle extending it self to the *Processus Mammiformis*; the Pulse beat low and uncqual, nevertheless he took another *Sudorifick*, but without success; for about Noon many mortal Signs discovered themselves; and although he was all along of a sound mind, yet after two hours he departed.

XIV.

XIV.

The Wife of *John N.* Chirurgeon, in *September* was ſuddenly taken with a Fever, with drowſineſs and anxiety of heart. I preſcribed this Sudorifick.

Take *Diaſcordium* of *Fracaſtorius*, a dram; Confection of Hyacinth, *Lapis Prunella*, Salt of *Scordium*, of each a ſcruple; our Prophylactick Water, an ounce; Betony Water, as much as ſufficeth; Syrup of the juyce of Holy-Thiſtle, half an ounce: Mix it for a draught.

It produced no Swear, which was an ill Omen: The next day therefore ſhe took this, which is ſomewhat ſtronger.

Take Treacle, *Diaſcordium*, of each a dram and half; our Prophylactick Water, an ounce and half; Salt of Holy-Thiſtle, a ſcruple; Syrup of Limons, ſix drams: Mix it for a Potion.

And this alſo effected nothing: For variety-ſake, in the Evening I gave her this following.

Take Salt of Wormwood, *Scordium*, *Prunella*, Antimony Diaphoretick, of each a ſcruple; Syrup of the Juice of Holy-Thiſtle, an ounce; Our Prophylactick Water, two ounces: Mix it for a Draught.

By the help whereof ſhe began to ſweat, and the Fever to abate, together with the anxiety; but the third day after the Spots appear'd, which carried her off immediately.

Her Husband, after eight dayes, beginning to viſit his Patients again, came about eight in the morning to one that was ſick, when ſitting down on a Stool, he was ſuddenly ſo taken, that he could not

not rise again; about Noon, by the help of his Son and his Man, he went home, where taking his Bed, he was presently seized with a great drowsiness, which I call'd a *Coma*; because whatever I did or said to him, I could not get two words from him; I presently prescribed him a Clyster, and this Ointment for his Head.

Take Oyl of Marjoram, a scruple; Oyl of Rue, a dram; of Amber rectified, a scruple; Rosemary, half a scruple: Mix them.

I advised also that they should endeavour to make him sneeze by putting Tobacco to his Nose, and give him inwardly some of this Mixture.

Take Anti-Epileptick Water, of our Prophylactick Water, of Betony and Rosewater, Syrup of *Stœchas*, of each an ounce.

The Clyster came from him without any effect, and Tobacco did no good; he took a little of the Mixture; and about Evening I prescribed him another Clyster, and this sneezing Powder following was blown up his Nostrils with a Quill.

Take the flower of Lillies of the Valley, Leaves of Marjoram, of each half a scruple; white Hellebore, three grains: Make them into fine Powder.

By the help hereof he sneezed 3 or 4 times, and a purulent Matter came from him at his Mouth, but a greater quantity of it went down his Throat; besides which, there remained a great deal of it in his Mouth, which we could easily squeeze forth by pressing his Cheeks. These were sufficient signs of an *Abscessus* in the Brain, and consequently of certain Death, especially when we could not perceive that his Senses returned to him,

him, not that he was any other way reliev'd, but on the contrary, his voice quite failed him, and he began to rattle in the Throat; nor was I deceived in my conjecture; for in a short space he died.

Four of his Children, and a Maid-servant followed him; his Man was cured of a *Bubo* under his Arm-pit by drawing a Blister, and by applying some drawing Medicines. His eldest Daughter and youngest Son still survived: He had a Fever, but was not very sick; but she was handled more severely: She had a Thrush appeared on the eighth day, which took off not only the Fever, but the whole Disease; and thus of ten in Family, but three escaped. You have here an account of the true Signs and Effects of Malignity, which none but such as are possess'd with the Spirit of contradiction, can deny to be Contagious.

POST-

POST-SCRIPT.

I Intended to have publiſhed at leaſt forty of theſe Obſervations, but being taken up with giving an account of other things which will conduce very much to the illuſtrating of our Art (which in their due time may be made publick) I could make no further progreſs in this: Make uſe of theſe for the benefit of your Friends, and, if you deſire to ſee them, put us in mind of the other.

FINIS.

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